

The Mining Journal

AND ATMOSPHERIC RAILWAY GAZETTE,

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 550.—Vol. XVI.]

LONDON: SATURDAY, MARCH 7, 1846.

[PRICE 6D.]

TO IRONFOUNDERS, &c.—HELEN IRON-WORKS, near NEWICK-UPON-TWEED.—TO BE SOLD, BY PUBLIC AUCTION (unless disposed of by private bargain, of which due notice will be given), all those well-known and newly-erected WORKS (without reserve), on Tuesday, the 10th March next, at Two o'clock in the afternoon, in the King's Arms Hotel, Newick-upon-Tweed, and which, to secure competition, and wind up the affairs of the concern, will be put up at the

UNPRECEDENTEDLY LOW SUM OF £200.

These works have been built in the most solid and substantial manner, regardless of expense, and consist of large and lofty moulding shops, furnished with numerous cranes, two engines, capable of melting 8 to 10 tons an hour; two steam-engines, of 6 and 12-horse power; large boring-mill, and self-acting slide lathe, 24-inch headstocks, and 34-ft. long; several other lathes; drilling and screw-cutting machines; saw and loam mills—all driven by machinery. Three large fire-proof stores; a railway, with inclined plane and platform, upon which the materials for the furnaces are drawn by steam-power; dressing shops; long sheds, for holding boxes, &c. Three newly-erected coke ovens; large and lofty warehouses; counting-houses, &c., all of which are lighted with gas, and amply supplied with water, which is carried through the premises in pipes. It is not within the compass of an advertisement to point out the advantages which these works have over others in the country, for supplying the local, London, and other markets with castings, for which, at no other period, has there been so great a demand, and which is certain to be still further increased; they could be put into full operation in two or three weeks, being in perfect working order—a better opportunity having been

SELDOM PRESENTED TO THE IRONFINDER OR CAPITALIST desirous of engaging in this branch of manufacture.

ON THE FOLLOWING DAYS,

The BOXES, PATTERNS, MOULDERS' TOOLS, including all the IMPLEMENTS and MATERIALS used in an iron foundry, with a stock of CAST-IRON GOODS, WILL BE SOLD, BY AUCTION.

These consist of several hundred tons of moulding boxes, or flasks and patterns used for making rain, gas, and water pipes, girders, tanks, steam-engines, and other machinery castings; pots, chests, house gutters, round and square pipes; stove metal, and other castings sold in the London market; gun carriages, platforms, and other articles required by the Ordnance; gas apparatus and retorts, used by London Gas Companies; girders, columns, railway bars, and an immense variety of others, too numerous to mention

ALSO, ABOUT SIXTY TONS COKE BARS.

For rain, gas, water, and hot-water pipes, &c., of malleable and cast-iron; together with the MOULDERS' TOOLS, consisting of crane and hand ladles, slings, wrought and cast-iron beams, chains, shovels, &c. These are the most valuable description, being almost all new; the castings from which have been found correct, and a great part suitable for the London market; they have been prepared with the greatest care and accuracy, at vast expense, from drawings and models furnished by engineers, and by some of the first houses in the iron trade in London.

The Sale to commence at the Works each day at Twelve o'clock.

Plans of the Works, and catalogues of the boxes, patterns, &c., may be had, by applying to Robert Guthrie, Fenchurch Chambers, London.

D. Macbeth, Berwick.

Coxwell and Croser, Newcastle-upon-Tyne.

Bunkier and McKennie, Glasgow.

Joseph Hubback, Liverpool.

J. B. Galie, Edinburgh.

MINE MATERIALS FOR SALE.—Mr. NICHOLS TREVENA has received instructions to SELL, BY AUCTION, at EAST POOL MINE, in the parish of Illogan, on Tuesday, the 10th of March, by Eleven o'clock in the forenoon, the under-mentioned SPARE MINE MATERIALS:—

1 3-foot 13-inch pump
1 3-foot 14-inch ditto
1 3-foot 15-inch ditto
1 3-foot 16-inch ditto
1 3-foot 17-inch ditto
1 3-foot 18-inch ditto
1 3-foot 19-inch ditto
1 3-foot 20-inch ditto
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1 3-foot 22-inch ditto
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ANTHRACITE AND IRON OF PENNSYLVANIA.

(Extract from the letter of an Englishman to his friend at home.—W. D. B.)

My friend, I have now to give you some account of the mines of Pennsylvania. Not that I can offer anything more than a mere sketch, or outline; for it is necessary for me to do so, as all further details on the subject may be found by such as seek them in the printed reports of the state geologists, and of other gentlemen, employed either by the Government or by private companies and individuals, in investigating the coal-trade of these regions.

Pennsylvanian coals, as you well know, are of two kinds,—ANTHRACITE and BITUMINOUS,—the former lying on the east, the latter on the west, of the Alleghany Mountain.

In these regions the primary rocks have altogether disappeared, or, if occasionally found, are found almost buried and lost amongst overlying rocks of the lower secondary series. This vast system of the lower secondary strata, which extends from the primary rocks upward to the carboniferous or coal-bearing series, consists of 13 separate groups, or formations:—

1. A hard compact SANDSTONE, almost purely silicious, and frequently exhibiting evidences of the heating agency to which it has been subjected from the rocks below.

2. LIMESTONE, of a bluish, or, sometimes gray or nearly black, colour; containing sand, clay, flints, oxide of iron, fossil shells, and zoophytes, with rich iron-ore above.

3. SLATE,—generally of a black or bluish, though sometimes of a gray, olive, or yellowish-brown, colour.

4. Hard, white and gray, or, sometimes reddish or greenish, silicious SANDSTONES, of various degrees of coarseness, and frequently containing pebbles of a considerable size.

5. Red and variegated SHALES, containing in its lower portion, red sandstone, and towards the upper, thin layers of argillaceous limestone; also, excellent fossiliferous iron-ore.

6. Argillaceous blue LIMESTONE, rather slaty, containing, sometimes, fossil organic remains, and, sometimes, iron ore.

7. Coarse-grained and rather loosely cemented SANDSTONE, of a whitish, or yellowish-white, colour, having, in some of its beds, abundance of fossil shells, bands of chert, and occasionally a little iron-ore.

8. Alternating strata of dark-gray, greenish, and olive-coloured SLATES, interstratified with gray and greenish argillaceous SANDSTONES, and, in the lower beds, with thin layers of LIMESTONE.

9. Brownish-red, greenish-gray, and buff-coloured SANDSTONES and SHALES.

10. Massive beds of coarse, hard, gray SANDSTONE, sometimes containing pebbles, with occasional bands of dark-greenish SLATES intermixed. In this formation are sometimes found bands of black carbonaceous slate, flattened stems of plants, and even thin scales of coal itself.

11. Red SHALES, and red SANDSTONE, with alternating layers of gray sandstone,—and, here and there, IRON-ORE of considerable value.

12. Massive strata of coarse silicious CONGLOMERATES, alternating with white, or light-coloured sandstones, and containing some thin beds of dark carbonaceous shale.

13. COAL,—the lowest beds of which are generally found near, and, sometimes, even in the conglomerate rock. In ascending, however, we frequently find the coal-seams, more or less, separated by beds of soft argillaceous, bluish-gray, or light gray, sandstone, and of dark-coloured or grayish slates and shales, with occasional bands and kidney-shaped masses of valuable iron-ore.

The anthracite region may be divided into three distinct coal-fields, all bearing the same geological character, but separated from each other by anticlinal axes or lines of elevation, and then sub-divided within themselves into lesser synclinal axes, or trough-shaped basins. First—there is the south or Schuylkill region, running nearly east and west, and extending from the neighbourhood of Manch Chunk and the Lehigh, to that of the Susquehanna;—secondly—the Middle region, ten miles further north, and almost parallel with the former;—and thirdly—in the north and north-east, the Wyoming region, which extends from above Carbonade on the Lackawanna, to the north branch of the Susquehanna near Schicksherry. All the coals of these three regions, excepting only a small portion at the western extremity of the first, consist of anthracite, lying in beds of various thickness, from 1 to 20, 30, 40, and even 60 or 70, feet. In many places—particularly amongst the precipices, ravines, and river-channels of the country,—large seams lay open to the naked eye. At Locust-gap, in the middle region, (a narrow valley, made by the passage of the Locust-creek through the Locust-mountain, and looking as if the hand of nature had taken a slice out of the mountain to let the waters through,) this is especially the case. Here may be seen a body of coal, the magnitude of which is hardly to be conceived but by those who have visited the spot. The veins—in some places by the action of water, and, in others, by the overthrow of large pine-trees, recently blown down—are often half-denuded. One of these trees I saw lying in the creek with, at least, half a ton of coal, which had followed its downfall, scattered around it. The usual mode of mining here is by running a tunnel or drift into the hill just above water-level, and of sufficient size to admit rail-waggons. The breast of coal is then pursued by the miners to the summit or out-crop, working out the coal as they proceed, and throwing it behind them, or sliding it down to the drift, where it is put into the waggons, and then conveyed by railroad to the nearest market or canal.

These anthracite coal-fields have been calculated to contain about 975 square miles, or 624,000 acres. It has also been estimated that each cubic yard of coal, in the ground, yields a ton when mined, so that a horizontal stratum of coal but three feet thick, extending over the space of one acre, would afford 4,840 tons, and proportionally more according to the steepness of the dip or inclination. Now when we consider the number and thickness of these coal-beds, each overlying the other, we can hardly conceive, much less calculate, the quantity of this article, or how much it must add to the future wealth and greatness of Pennsylvania. During the last 25 years, the quantity of anthracite, raised and sent to market from these mines, has grown up from almost nothing to more than 2,000,000 of tons. In 1820, the amount was only 365 tons; in 1830, 174,737; in 1840, 865,414; in 1845, 2,012,742! Thus has the trade more than doubled within the last five years, and is still only in its infancy. What with the daily increasing population and manufactures of this country,—with her increasing railroads and facilities of conveyance—what will it be in 5 or 10 years more?

Nor is the iron-trade less prosperous and promising; and with such superabundance of fuel (both coal and charcoal) and variety of iron-ores, all more or less rich, and several of them yielding from 40 to 60 per cent. of metal, it would be wonderful, were it otherwise. In 1839, the quantity of ore, mined and smelted, amounted to 506,724 tons, producing somewhat more than 190,000 tons of iron. It now exceeds 800,000 tons of metal; and railroad iron, equal to any in Europe, is now manufactured at Danville, as it will soon be in many other places, from anthracite alone. The profits of the ironmasters on this, as on their pig-iron, are immense,—not less than 100 per cent.

All these things, as you may well suppose, have raised, and are yearly raising, the price of lands in these districts. I know two estates,—one of 414 acres, (eight miles west of Pottsville), and the other of 1700 acres, (a few miles farther north towards Sunbury)—either of which I might have had, five years since, for between \$10 and \$17 an acre, which are now producing an annual rent much greater than the sum then asked for the fee-simple, and which could not now be had at 20 times the original cost.* Had — laid out his money on lands like these, instead of investing it, as he has done, in different States' stock, he would now be enjoying an income equal to his heart's desire.

There are still numerous tracts equally abounding in mineral wealth, though not at the present moment so conveniently situated for markets, which might be had at from \$10 to \$20 an acre. Only a few days since I most reluctantly declined the offer of a large tract in the middle region at \$17 an acre, which must soon (when a few miles of neighbouring railroad are completed,) be worth more than 10 times that sum. Another estate in the same district, wanting the completion of only three-quarters of a mile of railroad, to connect it with

* Such as is now so extensively worked in several of these districts, particularly along the Monmouth ridge, in the neighbourhood of Danville.

† This series forms, as it were, the outward ring of all the anthracite coal-fields in Pennsylvania.

‡ In these coal-fields, (says Mr. Lyall,) particular seams are found to be more persistent than the accompanying beds of grit, shale, sandstone or limestone. As we proceeded from Pottsville and Tamaqua to the Lehigh, we found the beds of grit and shale gradually to thin out, so that several beds of anthracite, at first widely separated, were brought nearer and nearer together, until they united and formed one great mass. The same is particularly the case in many parts of the Shamokin district. On the tops of the hills and ravines may be seen coal strata intermingled with slate and earth; but in descending, the intervening layers grow thinner and thinner, and soon run out, leaving a large unbroken body of coal without admixture of any sort.

§ This region must become, ere long, one of the greatest coal and iron manufacturing districts in the United States, if not in the world. All who have visited the neighbourhood, will, I am sure, concur with me in this opinion. From the high breast (several hundred feet above water-level,) presented by the mountain, the veins are easily accessible, and at the cheapest rate. No sinking of shafts or slopes, no steam-engines or expensive machinery,—nothing but drifts being at all necessary for getting at the coal and iron.

¶ The effects of the coal-trade on the interior of the state are quite wonderful. It has peopled whole districts, and made the solitary places glad, building up towns and villages, constructing railroads and canals,—and

—changing the habitations of wild bears

Into bright fields and social haunts of men." Though Pennsylvania is involved in a debt of \$40,000,000, in consequence of her railroads and canals, yet have these works added more, far, far more, to the intrinsic value of the state, than their actual cost, and, instead of impoverishing, have incalculably increased, both her public and private wealth. The annual productions of Pennsylvania, agricultural, mineral, and manufacturing, are upwards of \$600,000,000; 1 per cent. on which value is abundantly able to meet all her liabilities, and nothing but moral courage in her legislators, has been ever wanting to enable her to do so.

|| The first of these estates has been leased to miners, for a term of 10 years, at 35 cents, net, for each ton of coal, they committing to raise not less than 35,000 tons per annum, which makes the proprietor's rent \$12,250 per annum. Portions of the 1700 acre estate have been also let to miners on nearly similar terms, and are already returning to the proprietors an income of more than \$20,000 per annum.

the Susquehanna and Great Pennsylvanian Canal, I could purchase—had I the money—at between \$30 and \$40 an acre. Both these estates may be said to overflow with coal and iron: 10,000, or 15,000, judiciously laid out there, would, in the course of a few years and without risk of any kind, secure to the possessor quite a lordly fortune. I would not, however, advise any one to purchase, here or elsewhere, without being well acquainted with the property,—with its mineral qualities, as well as with its location in regard to railroads and canals, and all present and future means of communication with other parts of the union. I had intended to give you some account of the Great Western or bituminous coal-fields of the state, but as it is nearly two years since I was amongst them, and as great changes and advancements have taken place in the interval, I shall defer all description of that region until I can again visit it. It may suffice, for the present, to say that the progress which has been, and is still being, made there in arts, commerce, and wealth, even exceeds what has been done in the east. Pittsburgh, its capital, in consequence of the natural advantages which it enjoys, more especially its river-situation and inexhaustible supply of finest coal, has been, in less than 50 years, converted from a village of log-huts into a great manufacturing and commercial city. But enough of this until my next letter.

P.S.—The Danville Iron Company manufacture almost entirely with anthracite,—at a cost of about \$15 a ton for pig-iron, and \$35 for railroad iron, which yields them, as I have said, a profit of more than 100 per cent.—the selling price of the former being from \$30 to \$35 per ton, and of the latter \$75! No wonder then, that they should be such zealous advocates of a protective tariff!

CHEMISTRY OF THE STEAM-ENGINE.—LECT. II. (Continued.)

BY THOMAS CRADDOCK, ESQ., BIRMINGHAM.

The objections brought against the tubular boilers are as follows:—Liability to priming, or the steam passing off to the engine mixed with water; irregularity in the pressure of the steam for the use of the engine, from the small quantity of water they generally contain; liability of the tubes to become furled up by deposit; greater complexity, together with greater original cost, and greater liability of derangement, with their becoming short of water from the small quantity they at any time contain. I have been thus particular in enumerating all the objections that I have been able to collect, as being brought against the tubular boiler. Before we proceed to investigate the objections of both boilers, it may be well to inquire how far in each case they are founded on those natural laws over which man hath no control, in which, as I anticipate, those I have enumerated of the common boiler take their rise, and therefore are beyond our power of eradication. Such is that which the hydrostatic principles make known to us, of fluids acting equally in all directions, and therefore tending to rend asunder the vessel containing them, according to the number of inches in its surface, as well as the number of pounds pressure per square inch. From this law, it follows that, if we take one of the best formed boilers of the common kind, and only 4 ft. in diameter, with only 6 lbs. pressure above the atmosphere, we find that there would be a rending force upon every part of its cylindrical surface, equal to 900 lbs.: but if we suppose that by any unforeseen cause this should even attain to 36 lbs. per inch, we should then have a rending force on its cylindrical surface equal to 5400 lbs.—the strain of which would act upon every part; the part, therefore, that from any cause was the weakest, would be the first to give way. But the case I have supposed is a very moderate one; for, as I shall be able to show in my next lecture, that there is great reason to believe that in many of our boiler explosions, the pressure even attains to 200 lbs. or upwards per square inch; we shall find, in that case, that the rending force on every part of the cylindrical surface of such a boiler as we have supposed would be 180,000 lbs. Perhaps the simplest conception that we can form of the manner in which this force acts, would be to take a ring of the boiler of 1 in. wide, and of course 4 ft. diameter. Conceive now that by an expanding cone, we produce a rending pressure equal to 180,000 lbs.—we have in this way, though it may be a crude conception of the nature of this hydrostatic pressure, yet at least an approximate notion of the rending force thus produced; if the boiler were 20, or even if it were 100 feet long, and cylindrical, then would there be as many times 180,000 lbs., as there were inches in its length. This gives you a near conception of the tremendous strain large boilers, under such circumstances, must have to withstand. Now, it is a natural law that fluids act in this manner, and therefore it is in vain for us to seek to mitigate the danger arising therefrom, by our attention to them. But yet we are not left without a remedy; for although we cannot alter this law of fluid pressure, yet we can at will diminish the size of the cylindrical vessel, in which we wish to generate or retain steam, this answering every purpose conducive to man's convenience. To give an instance—if we take a 3-inch tube, and instead of 6 lbs. pressure, we generate steam in it equal to 100 lbs. pressure per square inch, we now find that we have, as before, but 900 lbs. rending force, but here we have steam of 16 times the pressure of that in the common boiler, which, as will be remembered, was but 6 lbs. per square inch. To take the latter case of 200 lbs. per square inch on the surface of the 3-inch tube, we find we have only 1800 lbs. rending pressure—whilst we saw that, in the common boiler of 4 feet diameter, we had 180,000 lbs. rending force, or 100 times as great a strain upon every part of its surface. Is it objected, that my instancing the accidental high pressure of 200 lbs. is not a fair mode of putting the question? My answer is, that it is, against such contingencies or accidental circumstances, that men, in all their combinations and contrivances, should be vigilant, or on their guard,—for from such contingencies arise the most destructive and deplorable accidents. But this is scarce the worst effect our common boilers are liable to produce; for, as they contain a great quantity of water, and as this water, when impregnated with heat, as in the steam boiler, becomes an immense magazine of explosive matter, which on the bursting of the boiler, is instantly set at liberty, producing death and destruction around. Surely, if these accidents were far less numerous than they are, it may be worth a moment's thought, if they may not be prevented; but supposing that, on a strict investigation and impartial application, every sound principle be found waiting to relieve mankind from this (the worst) result of that otherwise useful and beneficial agent, the steam-engine, which hath so long, and would seem to be yet destined to become more universal in its relief to the physical energies of our race, and through them to the expansion of their higher and nobler powers. Here again the advantages of the tubular boiler, in preventing such fearful results from explosion, are strikingly obvious,—for as all explosive mixtures are dangerous in proportion to their quantity, as may be illustrated by 1 ounce as compared with 1 cwt. of gunpowder, so also are its destructive consequences the more to be feared in proportion, as its force is more or less expended in one direction, and through a given opening, as in the charge which escapes at the cannon's mouth, compared with the more diffusive and uncertain effect produced by its bursting. It will readily be seen, that in the tubular boiler, a greater area than the tube itself cannot exist, for the escape of the explosive matter, so also will it take a circumscribed and definite direction,—whereas, upon the bursting of the large exterior shell of the common boiler, an amount of explosive matter, many times greater than that which the tubular boiler will contain, is instantly scattered in all directions—life and property alike share its desolating consequences. But as I like to anticipate any objections that may be made, to my using a steam chest of 18 inches in diameter—I answer, first, that, as no heat has to be transmitted through the metal thereof, it is not injured thereby; besides, the metal may be of such a thickness without detriment as to preclude the possibility of its bursting, before the tubes. But supposing it were to burst, as it contains nothing but steam, which is in itself not a very dangerous element—the chief danger in boiler explosions, arising from the great quantity of water, together with the solid matter which is blown in all directions—and as the boiler containing the water is only connected in my case with the steam chest, by a pipe of 8 inches diameter—as far as the water was concerned, the bursting of the steam chest would in no way differ from that of the bursting of a steam pipe of 3 inches diameter, which every engine driver knows to be a very different thing from that of the bursting of his boiler.

I have already intimated that we have nothing to sacrifice in the economy, adaptability, lightness, and compactness, of such boilers, as would put an end to these desolating consequences. It is obvious that the common boiler doth not admit of as extended a surface for the absorption of the heat: notdare we have the metal thin, of which it is composed? These we have seen are two of the most essential principles for the production of steam with rapidity and economy,—whereas the tubular boiler affords both these conditions to their fullest extent. The common boiler is also lavish both in weight and room: here again the tubular boiler presents us with all we can desire; for although the tubular boiler is capable, when of much less weight, and occupying much less room, to produce an equal quantity of steam, even at a less expenditure of fuel than that of the common boiler, yet it is possessed of a greater recommendation than this—viz., that by its use we can generate steam with perfect safety of a much higher pressure, and thereby (as I shall explain in my fourth lecture) reduce the quantity of steam required for the production of a given amount of mechanical effect by at least one-half. Such is the conspiring tendency of the soundest principles, which, when well understood, and properly applied, are not conflicting elements, but work on harmoniously together for our good. This brings me to the investigation of what are considered the defects of the tubular boiler. The first objection we named was—liability to priming. This objection I found a very serious one, when I first commenced the use of a tubular boiler. But being aware that a column of water, however small, would have a pressure equal to its altitude in forcing the water back again into the tubular generator, which was carried over in the manner technically called priming, I therefore continued to elevate the steam chest, which is a cylindrical vessel of 18 inches in diameter, and composed of ½ inch plates. This being elevated about 4 feet above the top of the boiler, the steam, though it be produced, and flow over from the tubular generator in a very moist state, yet the water therewith carried, passes back to the bottom of the boiler, whilst the dry steam ascends to the top of the steam chest. I thus obtain as dry steam for the use of the engine, as is possible to be produced; for on opening the tap of the high pressure cylinder, the steam may be seen to rush out of a blue appearance, and on holding the hand in it for some time scarce any deposition of water is perceptible. I may here remark, that were it not dry the hand could

not be held in its current long. It may not be known to all, that in dry and high pressure steam, the hand can be held with impunity for some time; but not so in the low pressure or moist steam. The next objection to tubular boilers, is that, from their containing a comparatively small quantity of water, the uniformity of the pressure of the steam therein generated, is not so easy or so well attained, as in the common boiler. This is an objection that does exist; but like most others brought against this species of boiler, admits of a simple and efficient remedy—as, if chemistry did not teach us that the rate of combustion produced in the furnace is dependent upon the quantity of air passing there through, every day experience would soon convince us of this. This being the case, the matter stands thus—the quantity of heat generated is dependent upon the quantity of air admitted; so also is the quantity of steam produced dependent upon the more or less intensity of the fire. If we, therefore, admit the air, in a greater or less proportion, so as to keep the intensity of the fire proportionate to the pressure of the steam, or wants of the engine—I say, if we can do this, then does this objection vanish likewise. We can accomplish this in the most effective manner, and by the best possible means—viz., that by the pressure of the steam, we desire to keep uniform, regulating the supply of air to the furnace. The explaining the manner this is effected, will form part of my third lecture. The third objection we noticed was the liability of the tubes to become furled up: this objection I completely remove, by my mode of condensing the steam, which thereby enables us to use the same distilled water continually. This is a matter of the greatest importance to all kinds of boilers. The fourth objection was complexity, with greater original cost: this objection, like the others, will very shortly become baseless—as I have a mode whereby I make my tubular boilers, which only requires to be seen, to be acknowledged to be simple and effective; and as the tubes are now the most expensive part of tubular boilers, they will, from the daily increasing competition of the makers, together with their rapidly extending use, soon be obtained at a much less cost, and thereby enable us to produce tubular boilers nearly (if not quite) as cheap as those of the common kind. Tubular boilers, when simply arranged, and well made with iron tubes, will before long be acknowledged as not at all more liable to derangement than those of the common kind—whilst on the bursting of the tubular boiler, nothing more would in all probability take place, than to put out the fire, and to stop the engine for an hour or so. But how different would be the consequence of the bursting of the common boiler—the result of that being too commonly the sacrifice of many lives, with the destruction of much property. The only remaining objection is, that from its containing little water, the liability is greater of its becoming low. Here, again, owing to my passing the same water to and fro continually, should any stoppage of the supply of water ensue, it very quickly gives us warning by the cisterns becoming full, or in its flowing over the engine-house. I may here remark, that the addition of a few gallons per day is all that is required for the use of the boiler. We see, therefore, that the soundest abstract principles point us to tubular boilers, to ensure at once safety and economy; whilst the best practice, together with the appliances I have laboured to bring to it, and by condensing the steam, which enables us continually to return the same pure water, leave but little remaining to remove every valid objection to the use of such boilers. Here I am sure the facts are with me, though prejudice and power be against me. The extent of the advantages of tubular boilers for marine purposes is not easily conceived—that they, in conjunction with a greater degree of expansion in the use of steam, to which they will lead, will give to our marine steam power such an extended and economical application as would at least render it equal to voyages of double the distance the present system is equal to. Nor would the advantages end here, as the loss of steam-vessels by explosion would be no more heard of: the comfort and cleanliness of such vessels would partake also of that which the sailing-packets now so far surpass them in. As I shall have to recur to this subject in my fifth lecture, I will merely remark, that not less striking would be the good effects of these boilers whenever they may be applied for railway purposes; for although the present locomotive boiler, as a generative vessel, for the purpose of producing a great quantity of steam in little room, and less time, may be said to have attained a great degree of perfection—yet it is at the expenditure of an enormous amount of power in the back resistance, which the jet imposes upon the exhausted side of the piston,—whilst, without this jet, they are not capable of evaporating more than one-fifth the quantity of water they do with it. I have attempted to show, that with such tubular boilers as I have been speaking of, such a quantity of steam may be obtained, if desired, by what I have called the natural draught. The locomotive boiler is a species of tubular boiler, which, as far as its heat absorbing powers go, may be said to be nearly perfect,—but in its liability to explosion, it partakes in part of the vicious principles of the common boiler, by having a large quantity of explosive matter acting upon a large cylindrical surface. Owing to very exaggerated fears, and the manner in which they are too often ministered to, as a means of enlisting popular prejudice against the introduction of principles, such as I am advocating in reference to high pressure steam used expansively, I would propose the following simple and decisive experiments, which, if any amount of evidence could suffice to convince men who minister to this ill-grounded prejudice, it would do so. Let us take two boilers—the one on the usual marine principle, and the other a tubular, such as I have been treating of: I propose that the steam be got up in both, to their fixed pressures, which in the marine we will suppose is 18 or 20 lbs. to the square inch, and in the tubular at 115 or 120 lbs. per square inch; the atmospheric pressures, inclusive in both cases—the steam got up, and blowing away: let the safety valve of the low pressure boiler be loaded with 1 lb. additional per square inch; and, as I wish to show that at least I have faith in my principles, I will propose that the safety valve of the tubular boiler be loaded with 5 lbs. additional per square inch, for every 1 lb. which is placed upon the common boiler's safety valve per square inch; continue the weights in this proportion until one of the boilers bursts; do not stop here, but continue to load the valve of the other boiler, until it bursts also. We should, then, obtain evidence sufficient whereon to base two practical conclusions—viz., liability of the two kinds of boilers to explode; and that which is of greater importance, the destructive consequences produced by the explosion of each. It requires no prophet to foretell which way such an experiment would point mankind to evade danger, and ensure comfort. Turn we now to inquire the adaptation which the tubular boiler possesses for marine purposes. Here we find that a boiler 7 feet diameter, by 8 feet long, occupying a space equal to 264 square feet, and containing 500 square feet of heating surface—which, with steam at the pressure given, and used expansively, would be equal to the production of 80-horse power; to contrast this with a 50-horse marine boiler of the common kind, which is about 12 feet high, 8 feet wide, and 10 feet long, occupying a space equal to 960 square feet. Thus stands the matter in point of room occupied. We again go to the weight of the two boilers, and we find the common marine boiler about 20 tons for 80-horse power,—whilst the tubular would certainly not exceed 5 tons.

IMPROVEMENTS IN TREATING METALLIC ORES.

Specification of Patent granted to Frederick Bankart, of Champaign Park, Denmark-hill, in the county of Surrey, gent., for certain improvements in treating certain metallic ores, and refining the products therefrom.—Newton's Journal.

This invention relates to all ores containing copper, whether combined with sulphur or not; and consists in adjusting and mixing together the different ores in such a manner, that those ores which contain sulphur in excess may compensate for the deficiency of sulphur in the other ores, and submitting the ores, so adjusted and mixed, to successive roastings and lixivations, whereby a solution of sulphate of copper is obtained, from which the copper may be precipitated in a refined metallic state.

The method of carrying out this invention is as follows:—the copper ore is first reduced to powder, and the relative proportions of sulphur and copper which it contains are ascertained by analysis; then if the sulphur bears a less proportion to the copper than one to two, iron pyrites or copper pyrites, also pulverized, are added, in such quantities as will bring it to that proportion. If two or more descriptions of copper ores are to be treated, they must be mixed together in such proportions as will make the sulphur of the mixture bear to the copper at least the proportion of one to two; iron pyrites or copper pyrites being added, where necessary, to ensure that proportion of sulphur. And there must always be a sufficient quantity of sulphur ore for the conversion of the copper into a soluble sulphate, and also to allow for the escape of part of the sulphur during the processes. The copper ore, prepared in this manner, is then submitted to such a degree of heat, in free contact with atmospheric air, as will oxidize the metals not already in a state of oxide, and convert the sulphur into sulphuric acid. For this purpose, a common reverberatory furnace is used, and the ore submitted to a dull red heat, in free contact with the air, until the mixture attains a state of seeming fluidity, and it is retained in that state until the evolution of sulphurous vapour nearly ceases: the whole of the mixture is not put into the furnace at once; but it is divided into several portions, and one portion being put into the furnace, another is added when the first has attained a dull red heat, and so on until the whole has been introduced,—the mixture is frequently stirred during the process. The evolution of sulphurous vapour having ceased, or nearly so, the mixture is removed from the furnace to a vat or pit, and water (or a weak sulphate liquor from a previous lixivation) applied at about the boiling temperature, and retained at that temperature for some time, by means of injected steam, to ensure the solution of the sulphate of copper. When the sulphate of copper liquor is drawn off from the residual mixture, the latter is mixed with as much iron pyrites or copper pyrites as will supply the requisite proportion of sulphur; the whole is then subjected to a second roasting, and to a second lixivation: this process of adjusting the proportion of sulphur in the mixture, and roasting and lixivating, is repeated until the whole of the copper is obtained from the ore.

The next process is to precipitate the copper from its sulphate solution; after which it is to be fused, and run into moulds; it is then ready for sale as the metallic copper. Various modes of precipitation may be adopted; but the patentee prefers to employ cast or wrought-iron plates, keeping the solution at a temperature of from 130 deg. to 150 Fahr., and as nearly as may be of the same strength, by means of a circulating stream of fresh sulphuric solution, which, entering at the top, and being conducted by a pipe downwards, tend, by its greater specific gravity, to displace the lighter solution; the latter overflowing is to be returned into the lixivating vat, so be recharged with sulphate of copper, and this again precipitated, until the refuse liquor becomes a nearly saturated solution of sulphate of iron, when it is set aside to crystallize.

The patentee claims, as his invention, the mixing of the different ores of copper and iron pyrites in due proportions, according to the quantity of sulphur relatively with the copper which they respectively contain, and adjusting them in such manner as that ores which hold sulphur in excess may compensate others which are wholly or partially deficient in sulphur, and subjecting such mixture to a succession of roastings and lixivations (the residuum, after each roasting, having the proportion of copper to sulphur adjusted as before), and thereby obtaining a solution of sulphate of copper, whence the copper is obtained, by precipitation, in a refined metallic state.

Mining Correspondence.

ENGLISH MINES.

BARRISTOWN.—*Curry Taghmon, Feb. 27.*—There is no change in the 18 fm. level end west—it still produces 3 tons per fm.; the pitches, at this level, continue to improve; the lode in the eastern end, on middle lode, is still poor. The lode in Nangle's shaft, and the end up the hill, looks much the same, but producing rather less ore—about 1½ tons per fm. We expect to intersect the lode in footway shaft in a few days, which will be 4 fms. south of our present operations at the 18 fm. level. We have dressed and ready for shipment 40 tons of lead ore, which would have been shipped this week, had it not been for the incessant storms. I hope to effect this shipment next week.—T. ASKOVE.

BEDFORD UNITED.—*March 3.*—At Wh. Marquis, the lode in the 80 fm. level east is 18 in. wide, and unproductive; this level is not advanced far enough east for the run of ore ground gone down in the 70 fm. level east above. The lode in the 70 fm. level east is 3 ft. wide, and without alteration; and in the winze in this level the lode is 2 ft. wide, and worth 10½ per fm.; in the stopes, in the back of this level, the lode is 2 ft. wide, and worth 10½ per fm. The lode in the 58 fm. level east is 3 ft. wide, composed of mundaic, spar, and ore, worth 8½ per fm. The south lode, in the 47 fm. level west, is 10 in. wide, and poor. At Ding Dong, we shall commence taking down the lode in the 24 fm. level west by the latter end of this week. At Wheal Tavistock, there is no alteration of importance in the shafts or levels. We weighed at Morwelham, on Friday last, December ores, 102 tons 12 cwt., and sampled January ores, computed 101 tons.—JAMES PHILLIPS.

CALLINGTON.—*March 2.*—In the 100 fm. level, driving south, we are opening ground that will set at 5s. in the 1½; the north end continues driving through good tribute ground. In the 90 fm. level, driving south, the lode has a very promising appearance, worth 10½ per fm.; in the north end the lode is worth 15½ per fm.; driving north, from the north engine-shaft, the lode is producing silver-lead ore; the water is increasing here, and more forcible than before; in the south level, we are leaving ground that will set at 5s. in the 1½; Kellybray lode, at this level, driving east, is producing copper ores. In the 80 fm. level, driving south, the lode has not been taken down; driving west, on the copper lode, the ground is favourable; the pitches, on this lode, at the 70 fm. level, are looking well; driving south, at the last mentioned level, we are opening ground that will set at 10s. in the 1½. The pitches, generally speaking, continue to turn out well. Our last parcel of silver-lead ores (101 tons), have sold at 20½ 12s. per ton.—J. T. PHILLIPS.

CRADDOCK MOOR.—*Feb. 25.*—The lode in the bottom of the north shaft is divided into branches by a horse; but we hope we shall soon get through it, when we anticipate that the lode will again be found productive of ore. The lode in the south shaft is about 18 in. in width, including a branch of quartz and ore, 6 in. wide; it underlies north about 10 in. in a fathom. In the past week we have discovered a lode, situate 18 fms. north of the south shaft, and 39 south of the north shaft; it is composed of soft priam and quartz, with spots of yellow ore, about 3 ft. in width, and is situate in an easy channel of ground, very different from the other lodes; we have commenced a shaft on it, which, should the favourable ground continue, will supersede the necessity of sinking the south shaft, as the lode in this latter could then be worked by cross-cuts from the new shaft.—JAMES NANCE.

At a meeting of adventurers, held at Liskeard, on the 25th ult., the accounts—showing a balance against the mine of 71. 1s. 9d.—having been examined, allowed, and passed, it was resolved, that a call of 1½ per share be declared, payable at the Devon and Cornwall Bank, Liskeard.

EAST TAMAR CONSOLS.—*March 2.*—At Whitson, in Hitchins's engine-shaft we have been deceived as to the bottom level; in clearing the shaft, 10 fms. below the 36 fm. level, we have discovered another level driven north and south; the north level is driven about 5 fms., where there is a kindly lode, with good stones of ore; at the south level we cannot get in very far, it is full of mud, so how far it is driven we cannot tell yet; we intend clearing it, as soon as possible. At the south shaft we have cleared the 36 fm. level 17 fms. towards Fuzzehill, this last week, for making a barrow road, as I said before. At Fuzzehill, we have set the stopes, south of the engine-shaft, on tutwork, at 30s. per fm.; also, we have set the north level to clear and secure towards Whitson. Our tribute department is looking very promising.—B. ROBINS.

EAST WHEAL ROSE.—*March 3.*—Account for Nov. and Dec. 1894.

Nov.—Costs this month	£2084 8 5
Surgeon and club	31 16 6
Dec.—Costs this month	1871 12 11
Surgeon and club	31 18 3
Bills these months	1588 11 11
Coal ditto	100 0 0
Donation for relief of labourers	50 0 0
Dues	964 18 2
Income tax	110 12 3
Discount on ore bill	96 19 8
Dividend—60½ per 128th share	7680 0 0
Balance	£14,610 18 1
Total	£17,338 19 8

Oct. 31.—By balance of last account £2462 12 3
Nov. 14.—Proceeds of lead ore 2928 13 7
28.—Ditto ditto 4281 1 8
Dec. 12.—Ditto ditto 3452 14 11
19.—Ditto ditto 460 17 8
20.—Ditto ditto 3668 0 2
Cargill adventurers, for agency, water-charge, &c. 99 19 5
Total £17,338 19 8

GONAMENA.—At a meeting of adventurers, at Liskeard, on the 25th ult., the following accounts having been allowed and passed, it was resolved—“That a call of 1½ per 1-256th share be now made, to be paid immediately at the Devon and Cornwall Bank, Liskeard.”

Labour cost for two months—viz., Nov. and Dec. £249 11 10
Materials 155 1 2
Balance now 116 14 3—521 7 3
Call made at last meeting 5512 0 0
Balance of last account 9 7 3—521 7 3

Report.—The engine both pumps the water and draws the stuff, and is of sufficient power for both purposes for a long time to come. The engine-shaft was commenced on a continuation of West Caradon great cross-course, at the point where (being sunk perpendicularly) it will be likely to intersect (at 35 fms. deep) the most promising of the five lodes cut in our adit. It has been sunk 25 fms. out of the above 35, and is at present progressing slowly, on account of the cross-course having taken a west underlie and gone out of the shaft, which is now sinking in the granite. At the adit level, 5 to 6 fms. deep, we drove on the north lode about 80 fms. west, and 20 fms. east; this lode was found large, sometimes 4 to 5 ft. big; we had some ore in it both east and west, with gossans and other indications of productiveness below, the lode (as is also the case with two or three of the others) being of the same nature as those at West Caradon Mine adjoining. After sinking the shaft 20 fms. under adit, we drove a little south to cut the above north lode, and have since continued this cross-cut 11 to 12 fms. further south to another very kindly lode cut this week, and we intend to keep on to intersect the other lodes. The lode just cut is about 12 in. big towards the bottom, and contains good stones of copper ore with fluor, a very promising lode. After cutting the north lode at the 20, we have driven east on it 16 fms.; lode now small, split up, but about 7 fms. back we drove through a small bunch of ore about 1 ft. big, and 2 fms. long, and we also had ore more or less almost all through the level, and still have in the end. The 20 west has been driven 15 fms.; lode in the end nearly 2 ft. big, with a leading course 1 ft. big, containing good stones of ore; we have rarely been without ore in this level, and a few fathoms back had a leader of ore 3 or 4 in. big. At the eastern part of the mine, 150 to 200 fms. from the foregoing workings, we have commenced another adit to cut the same lodes, our set being so extensive as that this eastern part approaching the Caradon Mine will not be seen anything of for years, if we wait for the western workings to be carried so far east. We have not yet cut any lode in this latter adit.

GREAT WHEAL MARTHA.—*Feb. 28.*—We regret that nothing has yet been done at the bottom of the old mine, owing to another breakage. The lode in the winze sinking in the 60 fm. level west is very hard, and the air being deficient to work properly, we have removed the men to stopes the back of the level, the lode in which produces some good stones of ore. At the new mine, the lode at the 20 fm. level east is 10 ft. wide, containing a little ore. The lode in the western end is 4 ft. wide, very promising. The lode at the point of the 10 fm. level (which is extended 15 fms. beyond that part of the 20), is very much improved, although mundaic is the predominating mineral in it, it is less compact, nor does it contain near so much arsenic as is found in many other parts of the mine; the strata too is traversed by small veins of copper ore of good quality; the lode in the back of the level is 4 ft. wide, and worth 12½ per fm., cost in stoping 11. 10s. per fm. The shaft men are working well, as are also the engineers. We expect the engine will be set at work in about 5 weeks from this time. The tributaries will prepare their ores for market against the next sampling.—J. PRINCE. T. PENALUNA.

HANSON.—*March 2.*—At Treza, our summen are driving at the 22 fm. level, east and west of Stainsby's engine-shaft, on Stainsby's lode; the lode in each end is 2 ft. wide, ore and kindly. The lode in the 12 fm. level east is 3 ft. wide, a very kindly lode, with some ore. The counter lode has fallen in with Stainsby's, going east, and are now going in together; the lode in the 12 west is 9 in. wide, unproductive. At Hanson, our summen are driving south towards the lode at the 64 fm. level; ground favourable, hope to cut Wheal Ribb lode in two or three weeks. The lode in the 64 west is small and poor. The lode in the winze, sinking under the 44, is 20 in. wide, composed of mundaic, iron, and spar, kindly, but very little ore.—Z. WILLIAMS.

GUNNIS LAKE.—*March 3.*—At Chilworthly, Bailey's engine-shaft is 4 fms. 1 ft. under the adit level—lode about 2½ ft. wide, principally gossan. We have continued costeaning, and cut a lode (supposed to be the middle lode, from which great quantities of ore has been raised further east), about 2½ ft. wide, composed of gossan, spar, and mundaic, and equally promising as the lode at a similar depth in the old mine east. In our next report, it is hoped, we shall be able to state that the other lodes in this sett south have been met with. There has also been a lode discovered 60 fms. south of the Wheal Hingstone lode, supposed to be the lately-discovered south lode in the Bedford United Mines sett, which is upwards of 8 ft. wide, composed of gossan, spar, iron, mundaic, and peach, with a small proportion of grey ore, altogether a very strong promising lode.—W. RICHARDS.

HAWKMOOR.—*March 3.*—The lode in the south engine-shaft is about 1½ ft. wide, composed of spar and mundaic, with spots of copper ore. In the western engine-shaft the lode is 15 in. wide, much as last reported. In the 15 fm. level, west of Hitchins's engine-shaft, there is no alteration—in this level east, the lode is 2 feet wide, composed of capel, spar, and ore, producing saving work.—P. RICHARDS.

HOLMBUSH.—*March 3.*—Hitchins's shaft is sunk 7 fms. below the 110 fm. level, the ground in the bottom of the shaft is hard. The 120 fm. level cross-cut is under the shaft, and we are opening ground each side of the level to prepare for rising against the shaft, which we expect to do this week. In the 110 fm. level, west of Hitchins's shaft, the lode is 12 in. wide, and worth 12½ per fm.; in the stopes, in the back of this level, west of Hitchins's winze, the lode is 9 in. wide, and worth 12½ per fm. In the stopes, west of the sump winze, the lode is 12 in. wide, and worth 10½ per fm. In the 100 fm. level, west of Hitchins's shaft, on the north part, the lode is 18 in. wide, and worth 30½ per fm.; in the 100 fm. level west, on the south part, the lode is 10 in. wide, producing stones of copper ore; we have driven through the lead lode at this level, and have intersected the eastern wall; the lode is 9 ft. wide, 4 ft. of which on the eastern side is composed of priam, spar, and small branches of lead, the remaining 5 ft. is principally flookan and spar; we have opened about 4 fms. in length on it, and we believe, from the direction of the lode, it is standing behind the old level so far north as the cross-cut; we are of opinion this lead lode will greatly assist us in prosecuting the mine in course of time, when we have opened more ground on it at this level, and have intersected it at the 110 fm. level, and communicated to the 100. We have commenced driving south at the 100 fm. level, from what has been called the Flapjack lode, but we are inclined to think the main part of the lode is further south, seeing there are several small branches of copper ore and mundaic dipping south, the underlay of the Flapjack lode, being north, as seen at the adit, 20, 40, and 70 fm. levels, besides there is water issuing from the south side of the level. In the 90 fm. level, driving west on the north part, the lode is 9 in. wide, producing stones of copper ore; in the 90 fm. level, driving south on the lead lode, the lode is 2½ ft. wide, composed of spar, priam, and spots of lead. In the 62 fm. level, driving north, the ground is favourable, and we expect to communicate to the other level this week. In the rise, in the back of the 80 fm. level, against Bray's shaft, the lode is small and worthless. We weighed at Calstock Quay, on Friday last, January ores, 118 tons 15 cwt., and sampled February ores, computed 95 tons.—W. LEAN.

LAMHEROEE WHEAL MARIA.—*March 3.*—We have commenced sinking our shafts. Hays's engine-shaft is sunk 11 ft. 6 in. I have put 12 men, 8 sump or shaftmen, and 4 labourers, to tackle, to draw the attle, &c. Davey's shaft is sunk 8 ft. 10 in.; I have 9 men there, three working every 8 hours; in Davey's shaft, we have water. We have four men driving to hill on letter A lode. I see in the *Mining Journal* this week, 60 tons of copper ore has been raised by one man and a boy in Wheal Martha Mine in three weeks or a month, under the 10 fm. level, which is the same lode as letter B, called Hebard's lode. Wheal Martha is to the west of us, and joins our sett, divided by the river Tamar. We have six men in our cross-cut, and 10 men working on the surface, making roads, taking away earth, &c., and shall increase hands.—J. TABB.

LANIVET CONSOLS.—In consequence of our not being able to keep the water, Elizabeth shaft has only been sunk 1 fm. this past month—the 70 fm. levels also have suffered from the same cause. The 70 fm. level east has been driven 1 fm. 2 ft. 6 in.; lode still large and hard, producing but little ore; the 70 fm. level west has been driven 8 fms. 3 ft., the lode here is large and kindly, but not producing much ore. We expect this end is gone through the first bunch of ore west of Elizabeth shaft; but hope in a very few fathoms driving to meet with another, which we know to be gone down from the 60 fm. level. The 60 fm. level east has been driven 4 fms. 1 ft. 6 in. through a kindly lode, about 2 ft. wide, composed of flookan, priam, spar, &c. The cross-cut is very nearly got under the whim shaft, but we fear it will not sufficiently drain the ground, so as to resume the shaft, before we have a little more dry weather. We have set a pitch in the back of the 70 fm. level west of Elizabeth shaft, at one farthing in the 1½, to raise 14 tons, and for the remainder of the taking (should they raise any more), at 2s. 6d. in the 1½.

SILVER VALLEY.—*March 2.*—I beg to say, that the lode in the 30 fm. level, driving west, is 2 ft. wide, producing some stones of tinwork; the lode in this level, east, is 2½ ft. wide, 1 ft. of which is saving work for tin. The lode in the 20 fm. level west is improved since last week, being about 3 ft. wide, composed of capel, spar, and peach, with 9 in. of the north part good tinwork. The south shaft is cleared 2 ft. below the back of the 30 fm. level, which we can see is clear some way eastward; but the western level is full of stuff near the shaft. We have commenced to sink a shaft in the eastern part of the mine (Wheal Sisters), on the course of the silver lode.—S. RICHARDS.

SOURTON CONSOLS.—The engine-shaft is now 11 fms. deep; in sinking this we have cut through a large lode, which has let down so much surface water, as to prevent our sinking any deeper with whim barrels. Our next step must be to bring up an adit to take off this water, when we shall be enabled to sink and cut the lode.—B. COOKE.

SOUTH WHEAL MARIA.—We are still breaking tin from the back of our north lode, and saving it for the stamps; this lode is likely to be very productive for tin on the back. The sinking of our shaft has been somewhat retarded by the grass water during the late rains; but the country is still of the most promising kind in the bottom of the shaft. As we go down, the branches of copper are more frequent and richer cut, which, together with the quantity of mundaic and killas accompanying it, running into the lodes each side of the shaft, and underlaying towards it, induces any practical miner to think that, like the boughs of a tree appearing above the summit of a hill, proves that a trunk is hid below, so these branches, on the same natural grounds, demonstrate the strength and quality of these lodes, which stop them through the country towards the approaching lode in the underlay; and, at the same time, as a distant connection, proves a closer tie in the junction beneath.—J. CHANHAL.

ST. AUSTELL CONSOLS.—*Feb. 26.*—We are happy to inform you that we have cut the lode east of the cross-course, leading towards Wheal Hawkins, and find it to be a good lode, about 2 ft. wide, containing malleable and grey ores, worth at present 15½ per fm., with every prospect of improvement. On the north part of Williams's lode, west of the cross-course, we have a good branch of ore, worth 4½ per fm. We are now through the lode, which appears to fully warrant the erection of machinery to cut it at a deeper level. We have holed the shaft on the Goffin lode, and have commenced driving west on it, which is at present poor, but presenting a very kindly appearance for making ore. We sampled on the 16th, 52 tons of ore.—J. SAMPSON. N. TREDINNICK.

TAMAR SILVER LEAD.—*March 2.*—The engine-shaft men are engaged cutting a plat at the 145 fm. level, which we hope will be completed by the end of this week. In the 145 fm. level, the lode is 6 in. wide, composed of capel, and ore, saving work. In the 135 fm. level, the lode is 18 in. wide, producing work of a promising character. In the 125 fm. level, the lode is 2½ ft. wide, yielding work of a coarse quality. In the 115 fm. level, the lode is 1 ft. wide, composed of capel, mundaic, and ore, saving work. In the 105 fm. level, the lode is still about 6 in. wide, producing capel and ore, saving work, but not rich. In the 75 fm. level, the lode is split in two branches, composed of capel, with spots of ore. We hope to sample on Friday the 6th inst., 90 or 93 tons of rich silver-lead ores. At North Tamar, in the 60 fm. level, the lode is 18 in. wide, 1 ft. of which is good work. In the 50 the lode is 15 in. wide, composed of capel, and ore saving work. In the 40 fm. level, the lode is 20 in. wide, carrying flookan and ore, saving work.—J. SPRAGUE.

TINCROFT.—*March 2.*—I beg to inform you that we have this day commenced sinking a new shaft to go down on East Pool lode, in the western part of the mine; we are induced to do this, from a recent discovery made in the East Crofty Mines, not far from our north boundary. In our north mine, we still have a good lode in the 80 fm. level west, worth about 80½ per fm.; and a good lode in the winze just before the end; our 70 fm. level west is also looking very well, and most of our other places are producing ore. Tin much the same as for some time past. In the south mine, the stopes east from the shaft in the bottom of the 152 fm. level, are looking excellent for tin, worth 45½ per fm. Our levels are all laying open tin ground, that will work at a moderate tribute; on the whole, I am glad to say, our prospects are good.—W. PAUL.

TRELEIGH CONSOLS.—*Feb. 27.*—In Christo shaft, below the 90, the ground much as usual, favourable. In the 90, east of ditto, the lode is 4 ft. wide, worth about 25½ per fm.; in the 90, west of ditto, the lode is 20 in. wide, producing stones of ore. In Garden's shaft, below the 80, the lode is 4 ft. wide, a part of it very good, worth about 80½ per fm.; the underlie very little; it is not yet into the perpendicular of the shaft. In Good Fortune shaft, below the 70, the lode is 3 ft. wide, with stones of ore; in the 70, west of ditto, the lode is 3½ ft. wide, very kindly, producing stones of ore. In the 60, west of Symons's, the lode is 18 in. wide, with some ore, and very kindly. In the 50 cross-cut north this level is at present very hard and wet in a capel; we think not very distant from the lode; in the 50, west of Symons's, the lode is 2½ ft. wide, with a branch of ore, 4 in. wide, rather more promising. In the winze, below the 44, the lode is small, no mineral. The 34, west of ditto, is suspended. In the rise, above the 20, the lode is small, and without ore. In the winze, below the adit, the lode is 1 ft. wide, with stones of ore.—W. SYMONS.

TOKENBURY.—*Feb. 21.*—I herewith send you a report of the present state of this mine. The 20 fm. level is extended west of D shaft about 28 fms. on the course of D lode, which, in the present end, consists of gossans, quartz, and much mundaic, spotted with ores; its width for the last few fathoms driving will average 3½ ft. At the same level (20), E lode is discovered about 12 fms. north of D shaft, and found to be at this point principally quartz, with a small portion of mundaic and ores; its breadth will average about a foot, and we have commenced to drive east on it. The 42 fm. level is driven west of Crouch's shaft 20 fms. on the course of E 3 lode, which at present consists of peach, mundaic, jack, and copper ores. The 55 fm. level at Crouch's, since last reported, has been driven west about 6 fms., 3 fms. of which passed through ore ground, saving work; the lode is now in a confused state, caused, probably, by being within a few feet of the cross-course. At present Crouch's shaft is passing through a harder channel of granite than usual; the lode therein is regular both in its course and underlie, but rather in a broken up state, being a mixture of spar, mundaic, &c.; its depth under the 55 is about 9 fms. At the 65 fm. level we propose driving on the cross-course north to cut E 4 lode, and south to intersect E 2, E 1, E and D lodes. If the cross-course continues at that depth as easy to drive on as it was at the adit, we shall get on rapidly, and may hope to discover something good on the above lodes so many fathoms deeper than we have yet seen them.—THOMAS TRELEIGH.

At a meeting of adventurers, held at Liskeard, on the 24th ult., the accounts—showing balance against the mine of 337. 3s. 11d.—having been examined, allowed, and passed, it was resolved, that a call of 5½ per share be declared payable at the Devon and Cornwall Bank, Liskeard.

TRETOIL.—*March 3.*—The lode in Henwood's shaft, sinking below the 70, is 20 in. wide, producing good stones of ore; we have done but little in sinking here since last reported, the summen having been engaged in finishing the plat at the 70 fm. level, and also in putting the flat-rods to draw from new engine to Henwood's shaft; the lode in the 70 fm. level, east of Henwood's shaft, is 1 ft. wide, producing some ore, and opening tribute ground; ditto west, the lode is 9 in. wide, producing a little ore, and letting out much water; from the present appearance of this end, we expect an improvement shortly; in the rise, in the back of this level, east of Henwood's, the lode is 9 in. wide, ore throughout; the lode in the rise, against Williams's shaft, is much as last reported. We have finished drawing up the pitwork in Russell's shaft, the greater part of which will be for sale, and also East Tretoil engine.—HENRY WILLIAMS.

UNITED HILLS.—*March 3.*—In Williams's shaft the lode is 2 ft. wide, good ore. In the 80 fm. level, eastern end, the lode is 4½ ft. wide, ore throughout, of average quality; in the western end the lode is 4 ft. wide, producing some stones of ore. In the 70 fm. level, east of eastern shaft, we are still driving south. West of Diagonal shaft the lode is large and unproductive. West of James's shaft the lode is 3½ ft. wide, with stones of ore; very little done in this end for the past week, in consequence of the water. In the 60 fm. level, east of eastern shaft, the lode is 2½ ft. wide, 18 in. ore of average quality. West of Harper's winze the lode is 3 ft. wide, 2 ft. ore of low quality; in the stopes, east of Harper's winze, the lode is 3½ ft. wide, 2½ ft. good ore. In the stopes, west of James's shaft, the lode is 5 ft. wide, 3 ft. ore of average quality. In the 50 fm. level the ground is a little more favourable for driving than last reported. At Wheal Sparrow, in the 50 fm. level we have put the men belonging to this end to rise against a winze sunk from the 40 fm. level. In the 40 fm. level, in the eastern end, there has been no lode broken for the past week; we have communicated the western end with the 40 fm. level, east of Richards's shaft; in the course of a few days we shall commence driving the 40, west of Richards's shaft. In the 30 fm. level the lode is 18 in. wide, ore throughout, of a coarse quality.—THOMAS TREVENEN.

WEST CARADON.—At a meeting of adventurers, held at Liskeard, on the 25th ult., the following accounts having been allowed and passed, it was resolved—“That a dividend of profit of 7½ 10s. per 1-256th share be now declared, payable on the 2d prox., at the Devon and Cornwall Bank, Liskeard.”

Labour cost for two months—viz., Nov. and Dec. £2673 1 9
Materials 1062 16 5
Lord's dues 333 3 1
Balance now 2860 5 11
Dividend paid—Jan. 1, 1846 1920 0 0—8849 7 2
Received for copper ore £3536 15 11
Ditto, materials sold 33 3 5
Balance of last account 3459 7 10—8849 7 2

Report.—We have 70 men working on Allen's lode in pitches, which are on the whole in fair condition. The eastern ground over the 50, near South Caradon, will yield considerable quantities of ore for some months to come. The western levels are at present poor. The 50 east on Menadue lode has been driven from the cross-course 15 fms. through a good lode worth on an average full 15½ per fm. The 50 west will be driven this month, with every prospect of being productive. The 38 fm. level has been driven on Vivian's lode east and west through a course of ore upwards of 30 fms. long, worth 20½ per fm. The west end is now worth 24½, and the back of the east end is worth that sum also, but the bottom not more than 12½. There is a large quantity of ore discovered in these two north lodes, which can be worked at a low tribute. The 50 cross-cut south has passed through another small lode during the past month, but the lode which they find so good in South Caradon is not yet intersected by us. The north shaft is to be sunk as soon as the water is abated, as it is much wanted, and the new whim is to be finished without delay. The sale of ore for one of the months now brought to account was smaller than usual, which reduces the profit for the two months; but the sales have since kept up, and Capt. Charles Thomas, our inspecting captain, gives it as his opinion that “your present dividends can be kept up without any unfair working, only perhaps you may do well to take a part of the amount in hand to pay for the new whim.” After making the usual dividend there will be a sufficient balance left to pay for the said whim. South Caradon adventurers are also indebted to us for ore broken within our boundary—we have a further reserved fund invested in railway shares.

WEST WHEAL JEWELL.—*March 2.*—The ground in the 115 cross-cut south is much the same for driving as when last reported. The 100 fm. level, east on Wheal Jewell lode, the lode is 18 in. wide, worth 6½ per fm.; the 100 fm. level, west on ditto, the lode is 18 in. wide, worth 7½ per fm. The 85 fm. level, west on ditto, the lode is worth 6½ per fm. The 70 fm. level, west on ditto, the lode is 6 in. wide, unproductive. We have taken the men from here, and also from the south cross-cut, at the same level, and put them to sink a winze below the 70, to make a communication to the 85. The 85, west on Buckingham's lode, the lode is still disordered. We have suspended this level for the present, from an impression that there is more lode still to the north, and we are about to drive in that direction, to ascertain whether our surmise be correct; the 85 cross-cut south is suspended for the present. The 30 fm. level, east on Morcom's lode, the lode is 2 ft. wide, composed of spar and mundaic, &c. The 12 fm. level, east on Tolcarne tin lode, the lode is worth 4½ per fm.; no lode taken down in the north part of the mine in the past week.—STEPHEN LEAN. RICHARD JOHNS.

WHEAL TRELAWNEY.—We expect to cut the lode at the 32 fm. level by the end of the next week. The lode in the 22 fm. level is 2 ft. wide, worth 16½ per fm. The lode in the 12 fm. level is 20 in. wide, worth 12½ per fm. The stopes in the back of the 22 fm. level, both north and south, are producing very good work. The stopes in the back of the 12 fm. level are also producing very well. We shall sample to-morrow, from 105 to 110 tons of lead.—P. CLYMO, JUN.

WHEAL SISTERS.—At a meeting of adventurers, held on the 25th ult., the following accounts were allowed and passed—no dividend or call declared:

Labour cost for two months—viz., Nov. and Dec.	£296 8 9
Materials	174 18 8
Lord's dues	34 7 7
Balance now	240 5 9—1256 0 9
Received for copper ore	£293 9 11
Ditto, materials sold	35 10 0
Balance of last account	627 0 10—1256 0 9

Report.—Since the last meeting both the winzes referred to in the report have been holed, and the 12, 31, and 41 fm. levels to the west of the engine-shaft are now well ventilated. The lode in the stopes at the 31 fm. level, west of engine-shaft, has deteriorated in value, though it still retains its size, being about 4 ft. in width, and composed chiefly of mundaic with black and yellow intermixed. Owing to the failure in these stopes, our returns have greatly fallen off in the past two months. We have now set these stopes at tributes of 11s. and 12s. in the 1½, and the tributaries are getting wages. The lode in the stopes at the back of the 41 fm. level is about 4 ft. wide, and consists of mundaic and black and yellow ores, worth about 3½ per ton, and showing indications of being found more valuable at a deeper level. The lode in the western end of this level is split in two branches, composed principally of mundaic. At the eastern end of the level this lode is about 2½ ft. wide, composed of quartz, capel, jack, and mundaic, spotted with ore. The lode in the 81 fm. level end, east, is about 2½ ft. wide, and consists principally of mundaic with good stones of ore in it, and presenting indications of being soon found again quite as good as it was a few fathoms behind the present end. The lode in the bottom stopes behind this end is about 2½ ft. wide, containing a branch of good ore 12 in. wide, and the remainder part of the lode spotted with ore throughout; and in the back stopes over the said bottoms the lode is 8 ft. wide, producing fair quality work, though not equal in value to the bottom stopes. The ore in this part of the mine is very different to what it is at the west of the shaft, as it yields here yellow ore only—the smalls will dress, whereas the western bunch being a mixture of black ore and mundaic will not bear dressing, which accounts for the ore latterly being so low in price per ton. We intersected the wall of the lode at the 51 fm. level on Thursday last, when the water came out in such quantity as to overpower the engine for some hours, and rose in the shaft and cross-cut so as to prevent the men from working. We now find that the water is drained down from the whole of the upper levels, which is a very hopeful indication of the lode being found productive. We have now cut through the lode, and find it about 2½ ft. wide, composed of quartz, mundaic, and yellow copper ore intermixed throughout—a very kindly promising lode, which is likely to be productive of a great deal of ore. Taking a general review of the mine at the different levels, it never presented more encouraging prospects than it does at present.

WHEEL FRANCO.—March 3.—The tribute pitches in this mine are going on favourably, and the men making wages; there is a large ore lode in the 32 ft. level driving east; in the winze, 8 fms. behind the end, between this level and the 30 ft. level, there is a good lode. Spry's shaft is down 5 fms. below the 32; a rail road is laying from Spry's shaft to the dressing floors; the wheel pit is nearly finished for the stamps wheel from the old mine, which, when completed, will add considerably to the returns, as the halvans have increased lately. The produce of the ore has improved from the greater care taken in saving the ore underground, from the work being set on tribute instead of tatwork.

WHEEL MARY CONSOLS.—Feb. 25.—The new 68 inch cylinder engine commenced working on the 15th ultimo, and works admirably well—equal to any engine we ever saw; and we are persuaded that the direct acting will supersede the indirect engines, as being more simple and less expensive. The 30 feet wheel and drawing machine are in course of fixing, and will be ready to work in a short time. We have not made that progress in draining the mine that we should have done had the castings been delivered from the foundry as soon as wanted. The water is drained to the depth of 25 fathoms under the adit level; and the bearers, cistern, and part of the plunger lift are fixed. The bottom castings for this lift were not delivered on the mine until the 18th instant. The lift will now be fixed without delay. We have examined the back of the 25 fathom level for about 250 fathoms in length: great excavations are made on the course of the lode; where it was found productive the lode was large, and where poor rather small. We have been informed by miners, who worked in and above this level about 16 years ago, that the lode produced many hundred tons of copper ore, and that some of the bunches were from 5 to 6 ft. in width. From this lode there is a cross-cut extended 12 fathoms north to another lode which has been driven on east about 12 fathoms. There is a sink in the bottom of this level, where we are informed they had a bunch of ore. We believe this to be a lode discovered in a cross-cut to the south of Wheel Sisters great south lode. The cross-cut referred to above (at the 25 in Mary Consols) is driven 12 fathoms north beyond the lode towards another large promising lode about 4 feet in width, discovered in a north adit level, and supposed to be Wheel Sisters lode. At the Lampen mine the lead lode so called has been intersected at the adit level, but instead of lead we find it composed of quartz, capel, mundic, and a mineral with which we are not acquainted, the whole spotted with yellow copper ore; it is about 2½ feet wide, and underlaying 2 feet per fathom. This lode to the south, as well as the large one above to the north, are parallel to the Wheel Mary lode on which the engine shaft is sunk, and can both be worked from it by cross-cuts, a great advantage for their early development. The flat rods are made, and other preparatory works are in progress for working the south lode of Lampen. The carpenters have contracted to complete the rods, bobs, horse whin, &c., for the sum of 10l.—**JAMES NANCE. HENRY TAYLOR.**

At a meeting of adventurers, held at Liskeard, on the 25th ult., the accounts—showing balance against the mine of 1229l. 12s.—having been examined, allowed, and passed, it was resolved, that a call of 5l. per share be made, payable at the Devon and Cornwall Bank, Liskeard.

TEOLAND CONSOLS.—Feb. 21.—I beg to inform you that Croker's engine-shaft is sunk 80 fms. under the adit level, and about 70 from surface. The pitwork is completed to the bottom thereof, and the shaft planked and divided nearly to the same depth; so that we shall soon be in a position to cut the plat, and cut and drive on the lode at the said 50 ft. level. We have in the present week added 4½ fms. in height to the column of the pressure engine, and erected launders, &c., for the conveyance of water to the same. We are now again in full course of working, and hope by this additional power to sink 70 fms. under the adit level. The 80 ft. level is driven east of Croker's shaft about 12 fms.; the lode in the present end consists of peach, quartz, and mundic, spotted with yellow copper ore. The adit level is driven north of Croker's shaft 86 fms., and about 10 or 12 fms. beyond the point where it was expected to intersect Croker's lode; the end is at present passing through an elvan course.—**THOMAS THRELAKE.**

FOREIGN MINES.

COPIAPO MINING COMPANY.—The following report for the month of August, dated Copiapo, Sept. 29, was received on the 20th ult.:

CHICO COPPER MINE.—Our prospects are improving; the vein in the 20 ft. level, east of Harman's shaft, is still good, and promises to continue so. In a winze that we are sinking in the 30 ft. level, west of Harman's shaft, on a south vein, we have broken some very pretty ore in the last month, the quantity as yet is not great, about 3 tons, but I entertain very high hopes that the rich part of the lode will be found wider in depth, and that this, though hitherto wrought to a very limited extent, will be found as productive as some of the other veins that have given so abundantly in the mine in former years. In the winze, west of Victoria shaft, the vein is still large, but the rich part is much narrower than when last reported on, about 4 in. wide; but the vein being large, soft, composed principally of very pretty gossan, and the ore rich, offers very great inducements to pursue it, in hopes of finding, and not far distant, the rich part as large, if not larger, than it was reported last month. All the other parts no material alteration.

SAN PEDRO COPPER MINE.—At this mine the prospects are not less cheering than when last reported on; for, although some of our old pitches, or stopes, whence we have derived the principal part of the produce for the last year, are becoming exhausted, we are laying open new ground that is of great value, not that the vein is larger, or the ore more abundant, but the quality is considerably improved, as you must have perceived from the different workings now in operation. In a level not more than 10 fms. below the surface, we have driven through about 20 fms. of good ground, with a vein containing black oxide and yellow sulphure of copper, about 20 in. wide on an average, and produce more than 30 per cent. We expect, in a few days, to intersect the lode several fathoms below this level, where I believe we have a good bunch of rich ore; for the vein in the bottom of the level has throughout the 20 fms. been larger than in the back or ceiling, so that I have great hopes of being able, in my next, to give you very satisfactory and cheering accounts of this mine. Produce for August at San Pedro, 72 tons; Chico, 36—total, 108 tons.

PAMPA LARGA SILVER MINE.—In my last I had informed you that we had, in clearing out some old works, discovered an arch, exhibiting in one part of it good silver ore; we have now commenced driving a level through it, and shall, in the course of a month, ascertain what it is likely to give. In driving north, about 15 fms. below the adit, where the vein looked very promising, we have communicated with some more old workings, filled with rubbish, which ought, in my opinion, to be cleared out at once, it being so uncertain at what point the ancient miners worked last. A mine worked so extensively, and then filled up in such a manner as this is, even to the surface, I never saw before. At the 20 ft. level, near the shaft, where the lode had a pretty appearance, finding that it had not been broken down so as to exhibit both its walls, we put a buncher to cut across it, and, although he had opened three veins, has not yet arrived at the wall; such is the immense size of the vein in places, and, in my opinion, it is very important that both walls of such a vein be discovered. It is a matter to me of deep regret, that we have not yet, in clearing the old works, or in any of our other operations, found anything sufficiently good to remunerate the owners; but, such is my opinion of this mine, that were shares to be obtained in Pampa Larga, I would risk my little all; and even should I prove unsuccessful, I should begin the world again, without any unpleasant reflection.

NANT-A-R-NELLE MINING COMPANY.—Having received several inquiries respecting the progress making with this undertaking, we have pleasure in publishing the annexed report, for February, from the manager, Mr. P. P. Conch:—"Enclosed is the cost sheet for February, 1846, by which you will perceive that there was no contract work, except a small bargain of 30s.; this bargain arose in consequence of Budge's misdirecting the level from the lode. He, Budge, formerly did a similar thing in the eastern end and lost the lode, and I was obliged to turn the level, and thereby again found the lode. Whilst I was in London I ordered John Thomas, with three other men, to clear out some old galleries above our levels, at which we are working—these, judging from appearances, contained large quantities of lead—as, in some places, the ground is all worked away, down to our, at present, bottom level of the old mine—300 fms., under which the new deep adit is intended to come. One of the levels, above our eastern end, I consider promising, and requires to be driven 6 or 9 ft. to meet the cross branch, which made the lead in the level below, of which Budge wrote some time since, and upon which branch we intend making a winze (a small shaft), for the convenience of working, giving air, &c. The rise, I have let from the bottom level upwards, to be carried 6 ft. long, 3 ft. at 2½ per fm. and a tribute, 50s. per ton, of such lead as they may produce therein—two men are here working, and have, in their estimation, produced 5 cwt. of lead the last week. I have also let the level above for 6 or 9 ft., at 2½ per fm. to cut across through this branch or vein; after which I intend to sink, to meet the other men, giving them also a tribute on the lead they may raise, by which our winze will, I hope, pay its way, and also open tribute ground, &c.

(FROM CORRESPONDENTS.)

WHEEL VERVALL LEAD AND SILVER MINE.—Situated in the parish of Combmarlin, Devon, about two miles east of the old Combmarlin Mine. The sett extends over Vervall estate, and the whole manor of Talscombe, being about a mile in length, and three-quarters of a mile wide, in which are five parallel north and south lodes, three of them have been partially worked, and are large and very promising, composed of flookan, spar, mundic, jack, and stones of silver-lead ores. The shaft sunk by the late company is on the side of the hill, and is behind the lode at the 20 ft., or bottom, level, in which they have driven 81 fms., which is only 18 fms. from the surface; it is, therefore, necessary to sink a new shaft further down the vale, which would take the lode 50 fms. deep, to do which it will be necessary to remove the wheel where more streams unite, so that sufficient water can be obtained at all seasons to drive the same, when it is considered sufficient power will be given to carry out the works contemplated; the lode appears to have improved in depth, the ground being easy, and the valley into which the lodes are running (which will be taken advantage of in the new shaft), indicates everything favourable to practical observation. The sett is divided into 2000 shares, and a lease granted for 21 years, at a moderate dish, or dues, of 1-15th.

WHEEL GILL.—There is now every appearance to warrant the belief that this mine will, in a few months, stand equal to the best in the Caradon district, every inch driven in the 10 ft. level improves; the lode here, 4 ft. wide, is rich in copper, and will very nearly pay the current expenses upon the mine; when this same lode is cut at the 40 ft. level, which will very soon be done, there is no doubt whatever but that she will at once pay dividends, and the patient shareholders be at last amply rewarded. Various other lodes in this extensive sett are continually being discovered.

WHEEL BLENCOWE.—This mine is situated in the parish of St. Stephen's (near St. Austell), about a mile south-west of the church, in a locality known for ages past to have been productive of quantities of tin. The present company obtained the sett about 12 months since: the lode now in the course of working was discovered from the "old men's workings." An adit had been driven to a considerable extent previously, but the lode had not been seen below the adit level. An engine-shaft was immediately sunk, and not an inconsiderable quantity of tin raised, and the sales have since averaged about three tons of tin per month, making from 55l. to 60l. per ton. The lode was first cut in the 10 ft. level, and found to be productive of excellent work; it has since been cut in the 20 fathom level—the lode has been cut into 4 feet (but they are not yet through it), and found to be exceedingly rich. A water-wheel has been erected, which, in addition to keeping the water, works six heads of stamps; another wheel also works the same number of stamps, and these 12 heads have produced about three tons of ore per month, which shows in some degree the quality of the lode. Twelve heads of stamps, in addition to the above, are now in course of erection, and it is calculated, that there is as much tin discovered as will take twelve months to return with the whole 24 stamps in full operation. Arrangements are also being made, for obtaining a more abundant supply of water, and, if this can be effected, a wheel of sufficient dimensions can be worked to carry the mine to any desired depth.

BESORE LEAD MINE (near Truro) is a most promising looking adventure, and, besides the lead already sold, there is about 2000l. worth considered to be now discovered. Capt. William Richards, of the United Mines, is the superintending captain; and Mr. William Carne, of Rosemunday, the purser.

Mr. James Clark has been elected purser of the Great Work Mines, in Germoe, in the room of John Silvester, Esq. (his father-in-law), deceased.

MINING NEAR TAVISTOCK.

(FROM A CORRESPONDENT.)

WHEEL MARIA still continues to return vast quantities of ore, although there is a decrease in quality. On Friday last 1000 tons were sampled, and the quality does not equal her earliest samplings; it is stated that preparations are making for an improvement in dressing the ore. Wheals Fanny and Josiah (her twins) are most promising setts; at the former a considerable quantity of ore is at grass, but no means of dressing it as yet, although dressing-floors, &c., are in course of active preparation. The lode going west into Maria is not so rich as it was.

WEST WHEEL MARIA AND WHEEL FORTESCUE.—Everything like activity is prevailing here, and proceedings are progressing satisfactorily.

TAVY CONSOLS.—A bunch of ore was cut about a fortnight since, containing (it is said) large portions of grey and black ore; the latter certainly predominates, and it is the opinion of some efficient judges that what is represented as grey copper ore will, upon trial, prove to be arseniate of iron. The discovery is an important one, and a great number of shares changed hands, and great desire was manifested to possess them, as long as the ore continued in sight, a reaction took place, but the end is looking kindly again. At the meeting recently held, a call of 10s. per share was made, and a resolution to drive and sink on the lode was made.

WHEEL ANDERTON is assuming a most promising appearance; the end in the 50 ft. level is looking well; and the lode in the bottom of the 40 ft. level contains some fine stones of yellow copper ore.

WHEEL ASH.—Here the most active measures are in progress, for sinking and working this sett effectually; the gossan, which has been laid open on the backs of the lodes, may be considered the finest ever seen in this district, and the several lodes promise well.

DEVON AND COURTNEY CONSOLS continues a favourite. They cut a bunch of rich ore last week in the adit level, in consequence shares rose in value considerably, and by some judicious careful miners, the undertaking is considered of no ordinary promise; the ore alluded to was cut at the junction of two lodes, and is generally deemed a fair indicative of future riches. The two-monthly general meeting is convened for Friday, the 6th, for the appointment of a purser to the mine (in consequence of the resignation of Mr. S. Lang), and other business.

WEST WHEEL FRIENDSHIP is also spoken well of, and the lodes are remarkable for the vast quantity of mundic; in depth there is a great probability of meeting with courses of ore.

CREBOR MINE.—A new lode, parallel to the lode from whence such immense returns were made during the last working, has been discovered. They have been driving on it for a short time in the 12 ft. level, when the lode presented a very kindly appearance; about a week since a change of ground was observed, and this week a fine course of ore has been cut. They are also driving the 24 ft. level to intersect it at that depth.

GEORGE AND CHARLOTTE.—Here they are proceeding but slowly, driving east at the deep adit from the Tamar, and west at William and Mary from the Tavy. They have a pitch working in the shallow adit, and are raising some ore of good quality. This sett presents unusual advantages, and will be worked cheap; the lodes are large, and of a very encouraging character. The deep adit has been driven about 120 to 130 fms. east, and the lode is about 4 ft. wide, and ore throughout, but not rich.

WHEEL FRANCO.—This mine, which has held out much promise for some time, assumes an unfavourable aspect at present, whether it be in the underground operations, or the surface management, is yet to be seen, but there is something inexplicable in the proceedings; the mine altogether is looking well, and yet a kind of monomania has influenced the shareholders, inasmuch that shares are offered at a considerable price under their estimated value.

ON THE ASSAY OF COPPER ORE.

SIR,—I shall feel greatly obliged by your informing me what flux is used by the Cornish assay-masters, for the estimation of the produce of metal in copper ores,—and, apologising for this trouble, I am, &c., J. S. Liverpool, Feb. 16.

[The fluxes used vary according to the nature of the ore to be assayed, and consist of soda, borax, nitre, flour spar, &c. For full particulars of the various modes of manipulation, we refer our correspondent to the Journals of May 31, July 5, 12, 19, and 26—1845.]

THE STANDARD.

SIR,—Suppose I have copper, assaying 2½ per cent., and see, by your excellent paper, that copper is worth 96l. per ton—How do I find out the mysterious standard? and what the smelters at Swansea will give me for it? Say, their smelting, or returning, charges are 2l. 5s. per ton. This is what many in England want to know, and what is asked of you from Baltimore. Excuse this trouble, but it will set the question at rest all round the world. From one who has smelted more silver ore than many others, and is an old subscriber to your paper.—*Dolgelley, North Wales, Feb. 23.* VEREMOS.

[In the reply to our Baltimore correspondent, in the *Mining Journal* of the 14th Feb., we have given every information which "Veremos" requires—the "mysterious standard" is there divested of its "mysteries"—the standard being really the value of a ton of fine copper, as contained in any description of ore. "Veremos" must ascertain the "standard value" of the day, which, on the low produce suggested by him, 2½ per cent., we will suppose 128—then, by Rule of Three Inverse, as 128:2½::100:3l. the gross value, and deducting 2l. 5s. for returning charges, the net value of a ton of such ore would be 15s.]

TRAP-ROCK, A MANURE.

SIR,—Having read, in the *Mining Journal* of the 24th ult., a notice thus entitled, wherein the author describes some observations made by himself relative to this subject during a journey into Radnorshire, I beg leave to call attention to some inaccuracies contained in it, which might be calculated to mislead the practical farmer. That certain rocks are valuable as manure, cannot be denied; but it does not follow from this that all are. It is, therefore, necessary to be able to distinguish those which contain fertilising properties from those which do not; and in the paper to which I allude, the author speaks of a method of making this research which would lead to results, or rather conclusions, entirely false. He says, speaking of this rock, "I calcined a piece of it, and found it contained a large portion of carbon, I should think from 10 to 12 per cent." But, I would ask, how could he possibly estimate the carbon by calculation? What is to teach him how much to allow for combined water, and how much for carbonic acid? Again, allowing this to be possible, the result which he obtains is undeniably impossible; for, if we calculate the per centage weight of carbon contained in pure carbonate of lime, we find only 11.88, so that a rock containing 12 per cent. of carbon cannot be a trap, nor even carbonate of lime. But the equivalent of magnesia is lower than that of lime, and as this is the only other earth likely to be found in the state of carbonate, the experiments would seem to indicate a double carbonate of these two bases—i.e., as dolomite—so that the analysis, if worthy a shade of credit, would indicate a composition very different from that inferred by the author. If, on the other hand, the carbon be supposed to exist in the state of anthracite, graphite, or bitumen—the only conjecture which would allow room for the forty per cent. of silica which he mentions—his method of estimation is equally fallacious; add to which, carbon in this state could not possibly produce any considerable effect as a fertilising agent.—Other observations which are equally inexact, but less liable to induce practical errors, may be passed over. I, however, agree with this gentleman, that many trap-rocks might be used as manure, if in a sufficient state of division, as a series of careful analyses recently made of specimens of this rock in various stages of decomposition has fully proved, that the changes produced in this substance by atmospheric influences are always attended with the loss of the alkalies which it contains. I should, therefore, think experiments on this subject might be worthy the attention of the agriculturist, who, as a considera-

ble choice of rocks of this formation in Cornwall. Its fertilising effects may be distinctly seen in some quarries, situated at the head of the hill, a little west of St. Austell, on the Truro road, from whence, I, a few months since, took some specimens for analysis, and hope shortly to be able to furnish the results.—J. A. PHILLIPS: *Ecole Royale des Mines, Paris.*

P.S.—Since the fertilising properties possessed by this rock depend on the alkalies which it contains, I apprehend its value as a manure is proportional to its facility of decomposition, of which we may form a pretty good idea by observing the effects produced on detached fragments which have long remained exposed to the atmosphere; those varieties which are early decomposed becoming friable, and of a paler colour on the exterior.—J. A. P.

BEDFORD UNITED MINING COMPANY.

The annual general meeting of the shareholders was held at the offices of the company, 61, Old Broad-street, on Saturday, the 28th ult.—W. ALEX. THOMAS, Esq., in the chair.—A report, on the state and prospects of the mines, by Mr. J. H. Hitchins, the manager, the directors' report, together with a general statement of the accounts, were presented and read by the secretary.—It was moved by the CHAIRMAN, and seconded by Mr. J. ANDREW, and carried unanimously,—"That the same be received and adopted."

In accordance with the rules of the company, the retiring directors being eligible for re-election—it was moved by the CHAIRMAN, and seconded by Mr. J. Y. WATSON—"That Mr. Charles Bailey and Mr. J. F. Harrison, directors, and Mr. R. H. PIKE be re-elected, which was carried *sem. com.*"

DIRECTORS' REPORT.

The directors of the Bedford United Mining Company, at the present annual general meeting, present to the shareholders a statement of accounts, to the 31st December last, showing a balance in favour of the company of 1031l. 8s. 11d.; by this account it will be perceived that the cash balance at the present time is 124l. 3s. 3d.—less than that of the corresponding period of last year; but, at the same time, it must not be forgotten, that, during that period, many new operations have been commenced and carried on with spirit, involving a considerable expenditure in the erection of machinery, stamps, &c.; and, in addition to which, it may be mentioned, that the tin raised and paid for during the past year—amounting from 10 to 12 tons, and valued at about 500l. remains to be sold—forming an asset to be added to the above balance for 1845. The report of the mining agent, in addition to the usual weekly reports, will sufficiently show the present state and prospects of the mine, to which the directors would refer—only observing, that the north lode—one of the objects to which attention has been drawn since the last meeting, and for the working of which adequate machinery has been erected, as above alluded to, will now very shortly come into operation, and from the result of which sanguine expectations are entertained. In conclusion, the directors trust that the time is not far distant when a return may be made to the shareholders.

The accounts submitted to the meeting showed the returns of the past year to have been—

1264 tons, producing	28439 13 7
Balance at last meeting	1155 9 3—59586 3 9
Cash	27766 18 0
Dues	531 10 2
London office	256 8 8—8554 16 10
	£1031 8 11

Mr. Hitchins's report, which was very lengthy, gave a favourable account of the prospects of the mine, and from which it might be inferred that the affairs of the company were in a flourishing position.—The thanks of the meeting having been passed to the directors and the chairman, they separated.

CALLINGTON MINING COMPANY.

The annual general meeting of the shareholders in this undertaking, was held at the offices, 44, Finsbury-square, yesterday.—Mr. HARDEN in the chair.

The notice convening the meeting having been read, the CHAIRMAN read the directors' report, which expressed the satisfaction they felt in calling the proprietors together rather earlier than on former occasions, to lay before them the position of the affairs of the company, which they felt assured would be satisfactory to all interested, and which the directors considered fully bore out the favourable opinions expressed 12 months before. They felt assured that the reports read would give assurance of a long continuance of the prosperity of the mines, and they had used their best exertions with the lords of the soil to procure from them a reduction of dues, in consideration of the large capital expended, and they had the satisfaction to state that, as regards that portion (the property of Lord Ashburton), they had succeeded in getting a reduction from 1-15th to 1-20th. They had every reason to anticipate that they should ultimately be as successful with the council of the Duchy, having had a satisfactory interview with the officers, on Saturday, the 7th ult.

A report from Capt. Phillips, the agent on the mine, was then read, reviewing the operations for the past year, the quantity of ground opened, and the length of levels driven, with the present appearances of the ore in sight, which was highly satisfactory. Reports were also read from a gentleman connected with the mine, which stated, that he had been all over the south and the north mines, on both lead and copper lodes, and he was much pleased to see the improved state of the north mine, both in regard to the mineralised state of the ground, and the improved richness of the lode, which would let at low tribute; that there was ground enough continually opened to keep up the samplings, and should the copper lode continue the returns and favourable prospects, it was likely to prove a very valuable property. This was dated February 7, 1846, and on March 5 last, he says, that every day's development of the lode shows an increased value to the property, and the favourable opinions, before expressed, are proved to be correct. From the statement of accounts, it appeared that the capital account was 23,838l. 19s. 4d., less a balance carried on of 1611l. 18s. 2d.; and that of this sum there had been received on instalments, 4018l.; and for ores sold, 19,815l. 19s. 4d.—making together the above sum of 23,838l. 19s. 4d. The entire cost had been 13,858l. 3s. 3d., which, on the whole year, left a loss of 42l. 3s. 11d.; but, on the latter months, a considerable profit had been made, and the CHAIRMAN expressed his confidence of very soon declaring a dividend.

Mr. FIELD expressed his satisfaction at the present prospects of the company, and, more particularly, were they of a cheering character, when the gloomy prospects of its infancy were considered; he moved the adoption of the accounts and reports.—Mr. MACKAY, previous to putting the question of adopting the report, wished to ask a few questions; and, first, was it not promised by the directors to call them together every three months?—The CHAIRMAN explained, that it had been suggested at a former meeting, when it was considered unnecessary, as the shareholders could always inspect the books, and obtain every information.—He then inquired, how many attended the board meetings, and was informed that there was an attendance book kept, which he could see at any time. Mr. MACKAY then alluded to the drawing of bills, and inquired, if more than one director signed them? as he had been informed, that bills had been drawn for ore sold, which had found their way into the discount market without any authority as of the company, but merely as a private bill drawn by one director. On this, several gentlemen stated they had heard similar rumours.—The chairman and directors emphatically denied any transactions of the company had been so dealt with; it was true, that when they advanced money from their own pockets, it had gone through their private bankers, instead of Messrs. Bosanquets, the company's bankers; but, in this, they thought they were perfectly justified.—Mr. ANDREW now made a specific charge, of a bill for about 80l., received about July last, not having been entered in the accounts for a considerable time afterwards; and Mr. STAINBY acknowledged, that a bill of so small an amount might have got entered at the time in the wrong accounts; but was certain it was afterwards rectified.

After a very long discussion on the subject, Mr. FIELD, on the proposition of Mr. ANDREW, drew up three resolutions, to the following effect:—"That certain statements having been made respecting the manner in which the affairs of this company have been conducted, a committee of five be appointed, to confer with the directors thereon, and in the event of finding it necessary to alter the constitution of the company, that they report to a special meeting to be called for the purpose." "That such committee consist of the following gentlemen:—Messrs. Field, James, Pearson, Tyrer, and Andrew." And "that this meeting be adjourned to Monday, the 30th inst."—Mr. Andrew was then requested to produce a report of the mine, which had been obtained from another agent (Mr. Robins), and addressed to Mr. Harrison, which stated that the tutwork had been opened faster than the tributers could take it away; and corroborating the reports which had been previously read.—The directors' report and accounts were then received, and ordered to be entered on the minutes, the above resolutions were passed unanimously, and thanks having been voted the chairman, the meeting separated.

CORNUBIAN MINING COMPANY.

An adjourned special general meeting of the shareholders in this company was held at the offices, 44, Finsbury-square, on Monday, the 2d instant.

P. STAINBY, Esq., in the chair.

The advertisement calling the meeting, and the minutes of the proceedings at that previously held, having been read, Mr. Irelin, the chairman of the committee, then appointed to inquire into the state of the affairs of the company, and to advise as to the best course to be pursued, whether by abandonment or otherwise, proceeded to read the report, which had been in accordance with such resolution prepared. The report, after referring to the unfortunate state of the company, and the expenditure of 9000l., without any return, or the prospect of such ever arising, was to the effect that the committee recommended two of the shareholders be appointed as a deputation to proceed forthwith to Cornwall, and to satisfy themselves by personal inquiries, and investigation of the accounts, of the correctness of the reports and representations submitted to them—deeming such course more satisfactory, as observations had been made with reference to certain mineral ground held by the chairman and others, from which an inference might be drawn that those gentlemen were only parties to the abandonment of the sett held by the Cornubian Mining Company, so far as such course would benefit them individually, as holders of the adjoining ground—a point which, if we mistake not, was met at a previous meeting by the chairman expressing his readiness to waive all claims to the sett referred to on payment of the costs incurred. A lengthened discussion ensued on several points, having reference to the past proceedings of this company, and the course

to be pursued in winding up its affairs, in which Messrs. Aston, Mead, R. Thomas, Scott, and Plumtree, took an active part. It was apparent from the conversation which took place, in reply to a question mooted by Mr. Aston, that on the formation of the company, and even up to the eleventh hour, the directors had not taken those measures which was their bounden duty, as regards the leases of the several sets—no fault but that of omission, however, being attributable to them; while the questions raised by Mr. Aston, as that gentleman contended, should have been instituted before any outlay was made. We were certainly struck with novel announcements on the part of certain of the proprietors present—one of whom (Mr. R. Thomas) stated that he had had some 14 years' experience, and affirmed that "no mine could unwater its neighbour." We apprehend that gentleman, in referring to his experience, must have had only a surface view before him.

It appeared that, on the 3d of November last, a communication had been made with one of the lords, offering him the materials at a valuation, as in duty bound, or the mine within three months from that period, and this antecedent to any expression of opinion of the shareholders, as to the abandonment of the mine. Such offer was, however, rejected, and it remained, therefore, for the shareholders to dispose of the materials, which were valued at about £1004, while the debts amounted to £682, 11s. 7d. In the report of the committee, a new company to work the adjoining ground was contemplated, although, as the CHAIRMAN very properly observed, such questions could not be entertained by the meeting—the object for which it was specially convened, being to receive the report of the committee, and to determine on abandoning further proceedings or otherwise. At the same time, he observed that, after what had taken place, it might be the desire of the new company, if such should be formed, to have the management elsewhere than at the present offices; in which case he should be equally ready to lend every aid, at the same time; that if they should not withdraw that confidence they had heretofore reposed, he would not shrink from the responsibility, and should gladly render any assistance in his power. The discussion, which was of a general character, terminated in a resolution being passed, to the effect that two of the committee do forthwith proceed to Cornwall, and that they communicate with the other three gentlemen named, on subject of the affairs of the company; and that immediate steps be taken for the disposal of the machinery, the question of the formation of a new company to purchase the same, and work the adjoining set, being considered as forming matter distinct from the objects of the meeting.—Thanks having been given to the chairman, the meeting adjourned.

HARROWBARROW CONSOLS MINING COMPANY.

The two-monthly meeting of the adventurers was held at Plymouth, on Thursday, the 28th ult., when the purser's accounts were examined, and the following resolutions were agreed to—That the same being found correct be passed.—The accounts produced showed an—

Expenditure from the commencement of the mine to the end of January, 1846, amounting to	£971	1	6
Liabilities	127	1	2
Amount of calls paid	£243	10	0
Ore sold, and work done for other mines	40	3	7
Balance due from the company	114	9	1
	1098	2	8

It was also resolved—That notice be given to those who had neglected to pay their calls, that (unless the same be previously paid) their shares will be forfeited at the next general meeting.—That a call of 5s. per 1000th share be now made, of which notice would be given to the adventurers.

The captain's report was read, from which it appears that a very excellent tin lode had been discovered in the northern part of the set; but, in consequence of the grant for tin not having been completed by the Duchy, it was deemed advisable to discontinue driving on it until its completion. The report appears to have given general satisfaction, whilst the purser, S. B. Sergeant, Esq., received the thanks of the meeting for the very efficient manner in which the accounts were kept.

NISTER DALE IRON COMPANY.

The annual general meeting of the shareholders in this company was held, at the office, No. 10, Old Jewry Chambers, on Friday, the 6th inst.

S. P. FRATT, Esq., in the chair.

The report presented to the meeting entered very fully into the proceedings of the company, and its position in a pecuniary point of view—from which we gathered, that the total expenditure was £9,260, 11s. 7d., including the liabilities, estimated at about £18,272, but against which was to be placed the assets of the company, consisting of stock of iron purchased for conversion, and arrears of calls, amounting in the whole to £16,640. As regards the make of pig iron, nothing had been hitherto effected—the operations of the company having been confined to the manufacture of sheet and bar iron, from the produce of other works, 1500 tons of pig iron having been purchased, and now in course of being manufactured. One blast furnace, however, was in the course of erection at Nister Dale, and it was proposed to purchase a mineral property of vast extent, on which a blast furnace was now in course of working, as also to erect two other furnaces, whereby the works would be in a position to turn out 200 tons per week, and thus yield a highly remunerative profit on the capital employed: it was confidently expected, that the one furnace, now in course of erection, would be in blast in the month of August, capable of producing 30 tons per week; while the purchase of the property contemplated would not exceed 7000l., to 8000l., and the cost of which would be defrayed by the saving effected in the iron smelted on the spot, whereby double profit would be realised in the space of two years, if considered alone as regards the saving effected. As regards the value or properties of the article produced, no question could arise, as its quality in iron and steel had been tested, and it had been found that such was adapted for the foreign and English markets, where a demand might be confidently relied upon.

It was proposed, after a lengthened discussion, that the whole of the shares not having been subscribed for, that the residue—being 628 in number—should be issued on certain conditions, which was in the end agreed to.—Mr. SCALE, the managing director, observed, with reference to the operations at the works, that up to the present time the raw material (pig-iron) had been purchased—while the capacity of the present works might be taken at 200 tons per week, on which a profit of 3l. to 5l. (varying with the quality) per ton, might be fairly calculated; but assuming that blast furnaces were erected, and the one mentioned purchased by the company, then further profits might be effected by the company smelting their own ores. Two steam-engines, with one of Nasmith's powerful steam hammers, had been purchased by the company, one of which is now in course of erection, and the other at work; they are of the respective powers of 45 and 25-horse power—the only difficulty attendant being that of securing labour, which was limited. The duty at present imposed by the tariff, or Zollverein, on iron imported into Germany, was after the rate of 9l. per ton on sheet iron, and 4l. 10s. on bars; but, in his opinion, this duty would be reduced after the period of two years, if not entirely abrogated, as free trade was now making such rapid advances.

In such case, with the knowledge that he possessed of the capabilities of the works, and the probability which presented itself to him of the Germans taking their iron from England, the contracts entered into being, to an extent of full 20 times more than they could supply, it was quite clear that unless the company placed themselves in a position to make pig iron, and thus render themselves independent of England for the German market, but little profit could be contemplated upon the duty being withdrawn, but having the power of manufacture from the raw material, with ample resources of iron ores (stahlstein and other ores) and fuel at their command, it would be impolitic were they not, by a trifling further outlay, to place themselves in a position, so as to secure the home trade, and thus insure a highly remunerative return. It was to be observed that as regards the coke heretofore used, although such had been attended by a cost nearly three times that which would be incurred in this country, that one-third, or like proportion, was only necessary in the reduction of pig-iron.

In the course of the proceedings, in reply to a shareholder, the CHAIRMAN stated, that the iron in stock, a valuation having been made on 31st Dec. last, was 7898l. 11s. 1d., exclusive of any excess or profit arising on its manufacture; and in reply to observations, as to the prudence of extending the works by a further outlay of capital, it was stated that, with the limited make of pig-iron in Germany, advanced prices would be required by the smelters, and the object of the company should be to compete, and place themselves, at the same time, on a firm footing, and independent position. From accounts submitted to the meeting, it appeared that the operations of the company, although of a confined nature at the present moment, were attended with profitable results, and a profit of from 7000l. to 8000l. per annum might be readily ensured. This and a profit based upon the present make of 50 tons per week, while the full power of the works is equal to 200 tons, and upon the price paid for English and German pig-iron delivered at Nister. A resolution to the effect, authorising the purchase of the mining property and blast furnace mentioned in the report was passed, as also a power vested in the directors, to offer the remaining unalotted shares to the public, with a guarantee on the part of the company of 5 per cent. interest per annum for the next three years ensuing, on the amount paid thereon.—Of the directors who retired by rotation, Dr. Skrimshire, of Peterborough, was re-elected; and John Charlotte, Esq., who is a considerable shareholder, was elected in the room of William Hopkins, Esq., of Cambridge; John Wheelton, Esq., was elected as auditor.—The thanks of the meeting were given to the chairman and board of directors.

WHEAL WALTER MINING COMPANY.

The first general meeting of the shareholders was held at the offices of the secretary, King-street, Chelmsford, on Tuesday, the 3d inst., in accordance with notice convening the same. The attendance was full, and the proceedings of the meeting were conducted with much animation and interest. A short time after the hour appointed, the shareholders called PERCY DAVEY, Esq., to the chair, who, on responding to the call, expressed his readiness to perform the duties, at the same time regretted a gentleman (Mr. Edwards) was not then present, who, being more conversant with mining, was better qualified than himself; he would, however, accede to the wishes of the meeting, and act to

the best of his ability.—The CHAIRMAN considered that, as some of the rules for the regulation of the company had been subjected to some slight alteration, that it would be advisable to read the same over, and then to take each rule in order, to discuss any remark or objection that might be made, and thus enable each shareholder to express his opinions.—The SECRETARY having read the rules, which were to the entire satisfaction of the meeting, they were passed unanimously.—The SECRETARY then proceeded to read the reports from the several mining agents who had been appointed to inspect the set, of which the following are extracts:—

Captain Jonathan Davey states—At a depth of six fathoms the lode discovered in Wheal Walter has produced some fine specimens of copper, but I have not seen any produce of lead from it; but the quantity of flookan, prinn, mundic, &c., indicate that metal; still the instance of Wheal Maria being composed of much the same material, proves it more congenial for copper. In conclusion, I beg to remark, that a more promising set unexplored I have not seen. Its extent and locality for shipping the ores and getting the materials is very advantageous.

Captain J. B. Clymo and Captain Penrose say—"This set (Wheal Walter) is about one mile in length, on the course of the lode, and about a mile from north to south. The stratum is soft blue killas. There is a lode, about 4 ft. wide, near the centre of the set, composed of calcareous spar, with flookan and large proportions of mundic, impregnated with copper ore. The lode has also been discovered at surface about 100 fms. east, in the farm yard. About 50 fms. north another lode has been opened on, which is 2 ft. wide, of a very promising character, and, we think, are well worthy of trial, and that their present indications warrant their being extensively developed."

A deputation from the shareholders, who had been down to the mine, stated to the meeting, that having engaged the services of a well known practical mining agent, who after dialling the lodes, employed a number of men to open on the lodes referred to in the above reports, and in doing so the south lode was found to be from 18 to 20 ft. wide, running south-east and north-west, of the character represented, and which is likely to make copper at a shallow level. About 40 fms. further north, another lode was discovered about 4 ft. wide, and 6 fms. still further north, a third lode of the same size, and precisely the same character as the first lode. Both these lodes run parallel with the south lode, and were opened on for upwards of 150 fms. in length, and it was recommended that a level be driven up at the lowest part of the set, and a cross-cut driven towards the proposed engine-shaft, and intersect all the lodes at a depth of 6 or 7 fms., which may also lead to the discovery of other lodes. There are several cross-courses and lodes discovered in the set, which have not as yet been opened upon, but are considered by practical miners very promising; and the strata, which is of soft blue killas, is very congenial for the production of copper ore.—These gentlemen produced several fine stones of copper, which they took from the lodes during their examination of the set, as well as various portions of the lodes, showing the nature and character of them.

These reports having met the approbation of the shareholders, it was resolved—That these opinions and reports be entered on the minutes.—That Messrs. P. Davey, John Edwards, E. F. Dayrell, J. Maitland, Major J. R. T. Graham, J. D. Poole, Henry Smith, J. J. Hays, J. W. Lay, and W. Morrison, be the committee of management.—That Mr. Wickes, the purser, be requested to call in the assistance of Capt. J. Davey, and to employ as many men as may be necessary in driving a level towards the engine-shaft, and doing such other needful work, until a permanent captain is appointed; and that the committee propose to pay him 2l. 2s. per month for superintending the labour, and setting and measuring the work.—That the purser be requested to give notice of the call of 20s. per 1024th share, made this day; and that the first instalment of the said call of 5s. per share be paid to the Union Bank of London, on or before the 4th day of April next.—That Mr. Crofts be appointed secretary to the company.—The thanks of the meeting having been given to the CHAIRMAN, the shareholders separated, highly pleased with the flattering and encouraging prospects of their undertaking.

WEST CORK MINING COMPANY.

The half-yearly general meeting of the shareholders in this unfortunate concern, was held on Thursday, the 5th inst., at the George and Vulture Tavern, which promises to be nearly the last of these periodical meetings, judging from the report and statement of accounts presented.

D. W. WITTON, Esq., in the chair.

The CHAIRMAN stated that, in compliance with resolutions passed at a previous meeting, measures had been adopted for raising the sum necessary for liquidating the balance of the legal and other charges, amounting to 10,000l.; and it was gratifying to him to be able to report, that the larger portion of the amount necessary, had been raised—being 8500l.—and which had been duly applied to meeting such claims; thus leaving only a balance of about 1500l., which, it was presumed, would be received antecedent to the period of holding the next general meeting. The proceedings of the company would thus be brought to a termination, and release not only those who had assumed the reins—who, unfortunately with the shareholders, were heavily harassed to the yoke—but would afford to them the gratifying pleasure of congratulating their co-proprietors on the terminus of the branch line of litigation, which had emanated out of the course of fraud, having been attained.—This pleasing intimation, we need hardly say, was received with satisfaction by the proprietors assembled, who at once expressed themselves in terms which must have been highly gratifying to the worthy chairman—while a resolution was at once unanimously passed, which afforded the most conclusive evidence that they meant acts, not words, to demonstrate their feeling.—It was accordingly moved by Mr. ALLFREY, and seconded by the Rev. W. WRIGHT, that the shareholders assembled, feeling the debt of obligation and gratitude due to their worthy chairman, for the interest manifested by him in maintaining their rights, and protecting them from personal responsibility, as regards the claim instituted, consider it an act of duty, while it affords them gratification, to present D. W. Witton, Esq., a testimonial of the high opinion they entertain of the unparalleled exertions and merits of that gentleman.—The resolution having been carried with acclamation, and a committee appointed, the CHAIRMAN returned thanks, and the meeting separated, evidently well pleased with the result immediately before them.

SOUTH YEOLAND.—At a meeting of adventurers, held at Liskeard, on the 24th ult., the accounts—showing balance against the mine of 40l. 11s. 2d.—having been allowed and passed, it was resolved, that a call of 1l. per share be made, at the Devon and Cornwall Bank, Liskeard.

WHEAL FORTESCUE.—At a meeting of adventurers, held at Tavistock, in December last, it was resolved to proceed with the sinking of the shaft immediately, without reference to other works on the mine; a requisition, in consequence, has been addressed to Mr. Matthews, the purser, to call a special meeting, to reconsider the subject, the requisitionists considering that it is not expedient to sink the shaft until the wheel pit is completed, and the adit level extended further north. Mr. Matthews has accordingly appointed Friday, the 13th of March next, at four o'clock, at the office, when the further consideration of the subject will be fully entered into. The following gentlemen signed the requisition:—John Taylor, W. A. Eade, John Wray, Richard Williams, G. Nelthorpe, Robert Price, John Taylor, jun., Paul Ninnis, John Phillips, James Andrew, W. Abbott, Peter Davy, jun., R. C. Rogers, John C. Lanyon, John Hocking, G. Croker Fox, William Francis, Richard Taylor, John Head, for Philip Taylor, John Taylor.

WHEAL NORRIS MINING COMPANY.—A meeting of the adventurers was held at the mine, on the 23d ult., at which the accounts (showing a balance against the company of 10l. 16s. 4d.) were examined, approved, and passed—it was resolved, "That a call of 1l. 10s. per share be made, for the further prosecution of the mines; and, that, unless all back calls be paid forthwith, the solicitor be instructed to institute proceedings in the Vice-Warden's Court for their recovery." The following report, from Captain J. B. Clymo, was read to the meeting:—"In meeting you on the present occasion, it affords me peculiar gratification to have it in my power to lay before you a satisfactory report of our operations in this mine. Our engine-shaft is now 30 fms. deep: the rock we are penetrating is compact granite, traversed by occasional veins of fluor, and at times impregnated with particles of copper pyrites; this stratum we consider congenial for copper in this district. As we are extremely anxious to sink the shaft as fast as possible, we are offering every reasonable inducement to the men to stimulate them to extra exertions, and for this purpose we have set the whole ground to sink to the anticipated 35 fm. level, at which point it is our intention to commence a cross cut south to intersect the main lode, which held out such flattering indications in the shaft sunk 16 fms. on its course. The length of the cross-cut from the engine-shaft to the main lode is expected to be about 11 fms. Our water-charges are comparatively easy—the engine being of the best construction; it only consumes 7 tons of coals per month, so that the item of fuel is very moderate. The machinery erected on the mine is fully adequate to develop the resources of the lodes—our opinion of which is materially strengthened from the circumstance of those same lodes looking so promising a little to the east of us in the adjoining mine of Caradon Consols; and we have no reason to doubt from all the indications combined, of our finding the lodes productive when we cut them here."

WHEAL PENCOSE MINING COMPANY.—A meeting of the adventurers was held at Farquharson's Hotel, Truro, on the 20th ult.—W. CARNE, Esq., in the chair.—Mr. W. BASSETT proposed, that, in consequence of the continued disagreement between Captains Champion and Stevens, they both be discharged from further attendance; and that Mr. M. Bassett be requested to seek, and appoint, an efficient captain—subject to the approval of the adventurers at their next meeting, to be held on the 14th April.—The following report from Capt. Bryant (Mr. Carne's agent) was read to the meeting:—"In conformity with the request of Mr. M. S. Bassett and the adventurers, I have inspected Penrose Mine, and beg to hand you the following as my report:—I find there has been opened on what is called Carne's lode upwards of 100 fathoms, in which distance there are several bunches of jack, and some good stones of lead; the lode averages from 6 inches to 2 feet 6 inches in width. In the east end the lode is from 1 foot 6 inches to 2 feet, composed of blue flookan, in which there is

jack, spots of copper ore, and some good bits of lead. In the west end the lode is about the same size—flookan, jack, mundle, and copper ore. There have been from 50 to 60 fathoms opened on a caunter lode, in which there have also been several bunches of jack, and some good stones of lead. This lode was expected to have intersected Carne's lode a few fathoms east from the present end on the latter, but, from the direction it is now taking, it cannot do so for some considerable distance. I would recommend that your adit ends east be continued, and west on Carne's lode, as this may be expected to intersect a north and south lode, in about 20 fathoms. The lodes in the east ends are looking better than for some time past. From the appearances of the lodes wrought on, which are of a promising character, and there being other lodes which you have not seen, I consider Penrose Mine may be said to be a fair speculation.

DISCOVERY OF IRON-STONE AT PATRICROFT.—In sinking the deep pit for coal at Patricroft, near Manchester, a bed of iron-stone, three feet in thickness has been found, at a depth of 300 yards, which has since been analyzed, and found to contain no less than 80 per cent. of pure iron. A large iron works will be commenced immediately.

MINERAL LAWS AND CUSTOMS IN DERBYSHIRE.—The lead miners of the High Peak are perhaps not generally aware that an important alteration in the mode of obtaining possession of mines for debts due thereon has lately been introduced at the instance of the head barmaster. Hitherto the custom has been, first, to arrest the mine, and if the debt were not then paid or disproved on trial, the mine became forfeited to the use of the creditor. The alteration alluded to, which would certainly afford a more summary remedy for the recovery of debts of this description, is simply to reverse the mode of procedure, by taking possession of the mine first, and arresting afterwards. In attempting, however, to carry the new law into effect in Calver liberty on Saturday last, the party, although acting in the presence, and by the orders, of the barmaster of the adjoining liberty, narrowly escaped rough usage from the miners, who look upon the new law as an outrageous innovation upon their ancient rights and customs.—Correspondent of Derbyshire Reporter.

MINING ACCIDENTS.

Junction Forge, Aston-road, Birmingham.—J. Brown was killed at Mr. Sims's South Hetton Colliery.—J. Halliday was killed while working in the north pit Ludgvan.—J. Inch was killed by the falling of a rock.
Horsley Colliery, Tipton.—J. Jones was killed by a fall of coal.
Blauavon Iron Company.—W. Oram was injured by a fall of mine upon him.
Osier Bed Colliery, Bilston.—E. Dorrell was killed by a fall of coal.

Transactions of Scientific Bodies.

MEETINGS DURING THE ENSUING WEEK.

Society.	Address.	Day.	Hour.
Asiatic	14, Grafton-street	Saturday	3 P.M.
Royal Botanical	Regent's-park	Saturday	4 P.M.
Geographical	3, Waterloo-place	Monday	8 P.M.
British Architects	16, Grosvenor-street	Monday	8 P.M.
Medical	Bolt-court, Fleet-street	Monday	8 P.M.
Medical and Chirurgical	53, Berners-street	Tuesday	8 P.M.
Civil Engineers	25, Great George-street	Tuesday	8 P.M.
Zoological	11, Hammer-square	Tuesday	8 P.M.
Society of Arts	Adelphi	Wednesday	8 P.M.
Geological	Somerset-house	Wednesday	8 P.M.
Graphic	Thatched-house Tavern	Wednesday	8 P.M.
Pharmaceutical	17, Bloomsbury-square	Wednesday	9 P.M.
Royal Literary Fund	27, Sackville-street	Wednesday	3 P.M.
Royal	Somerset-house	Thursday	8 P.M.
Antiquaries	Somerset-house	Thursday	8 P.M.
Royal Soc. of Literature	4, St. Martin's-lane	Thursday	3 P.M.
Astronomical	Somerset-house	Friday	8 P.M.
Royal Institution	Albemarle-street	Friday	8 P.M.
Philological	12, St. James's-square	Friday	8 P.M.
Westminster Medical	32, Sackville-street	Saturday	8 P.M.

INSTITUTION OF CIVIL ENGINEERS.

MARCH 8.—The President (Sir JOHN HENRIE), in the chair. A discussion took place upon the incrustation of boilers, and it was attempted to be shown that, viewed chemically, the muriate of ammonia might act judiciously upon the copper and iron of boilers; that the two metals in combination with a saline solution would induce a powerful galvanic effect; and if aided by the unequal action of heat on the different parts of the boiler, producing a thermo-galvanic circuit, considerable deterioration of the boiler would ensue. It was instanced that on applying a small quantity of the muriate of ammonia in a locomotive boiler the incrustation was immediately removed from the tubes, hence it was argued that a chemical action upon the metal must have taken place. On the other hand, after contesting the correctness of the chemical view assumed, it was asserted that from the small quantity of muriate of ammonia used, no perceptible chemical action could ensue, and that in practice after several severe trials of long duration in locomotive and marine boilers, when the water was subjected to the most delicate tests, no traces of metal could be discovered. It appeared that the action of the muriate of ammonia upon the carbonate of lime forming the incrustation was merely to disintegrate it, and render it soft and easy to be removed; for that after a given weight of incrustation had been boiled in a solution of muriate of ammonia for several hours, although it was rendered soft and pulverulent, the same weight still remained, thus proving that no sensible chemical combination had taken place. Numerous practical instances were given of the full success of Dr. Ritterbandt's invention, and the general opinion seemed to be, that by the introduction of the system, he had conferred a great benefit upon the engineering world, and most particularly upon railways where the incrustation of the tubes of the locomotives was a source not only of great expense, but not unfrequently the cause of accident, as by reducing the production of steam, the power was diminished, the speed could not be maintained, and collisions ensued. This process of keeping the boilers free from incrustation was therefore of great importance.

On the subject of the permanent way of the Dublin and Drogheda Railway, it was argued that although, if taken at weight for weight, there could be no doubt of the superior strength of the double T shaped rail over the bridge-shaped rail; yet that in practice the travelling on the Dublin and Drogheda Railway was remarkably smooth and easy, which it was contended resulted from the firmness of the attachment of the bridge rail direct upon the sleepers, and from the general perfection of the laying of the line of rails.

On the other hand it was shown that a lighter double T shaped rail, with good cast iron chairs and wooden trenails for fastenings, and fixed upon triangular sleepers, as on the South Eastern Railway, would, if the same machinery had been used in the preparation, and the same amount of attention had been given to the laying down, hence produced a better line. It was admitted that the great points in establishing a railway were to have heavier rails and stronger chairs laid with great accuracy and constantly attended to; but that even then, unless the carriages were well constructed and adapted for their loads, no smoothness or uniformity could be ensured.—The discussions were extended to such a length, as to preclude the reading of any papers.

After the meeting, Dr. Paltner exhibited to the members in the library his ingenious instruments for illustrating a system for obtaining the maximum of effect of all motive powers by using the power of reaction as well as that of action.

At the monthly ballot the following candidates were elected:—Mr. Alfred Giles, a member; Messrs. F. Pollock, W. Harding, C. K. Sibley, J. Van Norden Bazalgette, T. R. Crampton, John Gastineau, and J. A. Rainsome, as associates.

LONDON AND WESTMINSTER BANK.—The 12th annual report presented by the directors to the shareholders at the meeting, on Wednesday last, exhibits a highly satisfactory result. The profits of the bank during the past year, after defraying the current expenses, paying the income-tax, and making provision for all bad and doubtful debts, amount to £65,344. 1s. Out of these profits the directors paid, last September, a dividend, at the rate of 6 per cent. per annum, for the half-year ending the 30th of June, and they have now declared a dividend, at the same rate, for the half year ending the 31st of December. After the payment of these dividends there remains a surplus of 18,344. 1s. to be added to the reserved fund, which will then amount to 88,248. 16s. 4d. The balance-sheet is made up according to the form which the Legislature has required to be published weekly by the Bank of England, and shows the affairs of this establishment to be sound and prosperous. The deposits are 3,590,014. 2s. 2d., and the bank holds no less than 1,039,745. 12s. 3d. in Government securities. In other securities 2,927,841. 12s. 3d., and 563,072. 12s. 3d. in cash, amounting in all to 4,580,659. 4s. 6d. The proprietors' paid-up capital is 800,000l.

JOINT STOCK BANKS.—On Monday last, a committee of the Country Joint Stock Banks presented to Mr. Gilbert, of the London and Westminster Bank, a service of plate, bearing the following inscription which expresses the objects of the presentation:—"Presented by the Joint Stock Banking Companies of England and Wales, to James William Gilbert, Esq., the first manager of the first Joint Stock Bank, established in London, in testimony of their respect and esteem for his character and abilities, and in acknowledgement of the important services he has rendered by his writings and exertions to the cause of Joint-Stock Banking." The plate was accompanied by an address of a highly complementary character.

TO GEOLOGISTS.—There is now to be seen in the yard of the Marble Saw Mills, Clements-street, Vauxhall-road, a freestone fossil of the class Sigillaria, three feet six inches long, by four inches broad, with seven distinct stipes.—Liverpool Mercury.

HOLLOWAY'S OINTMENT AND PILLS ARE PRODUCING ENORMOUS SENSATION IN THE BARBADOES.—A letter recently received from Mr. Frederick Williams, of Barbadoes, states—"I know of many here that have tried Holloway's Ointment and Pills, and who have derived the greatest benefit from their use: one case in particular, a lady, whose foot was in such a dreadful state, that to save her life, amputation was deemed necessary, and yet she regained the complete use of her limb by these celebrated medicines. Any wound, sore, ulcer, abscess, or bad leg, even if of twenty years' standing, will readily heal by their application. Sold by all dealers in medicines, and at FREDERICK HOLLOWAY'S Establishment, 244, Strand, London."

PROGRESS OF FRENCH MINING INDUSTRY.

(FROM OUR PARIS CORRESPONDENT.)

At the recent great iron fair of La Chaudière, at Besançon, the demands for iron of all sorts were limited, and no variation took place in prices. Many furnaces were stated to have been obliged to suspend operations, owing to the floods; but the stocks on hand were not exhausted. In iron, prices kept up. Cast-irons were expected to decline, in course of a short time, as much as 15 fr. or 20 fr. from existing prices. This is, in fact, the necessary consequence of the excessive rate to which they were pushed at preceding fairs.

An immense establishment is about to be erected in the neighbourhood of Lyons, for the manufacture of locomotives, engines of vessels, and steam machinery of every description. The want of a manufactory of the kind has long been felt in the south of France, which has hitherto been compelled to obtain all its steam machinery from England, or from distant parts of the kingdom. The general assembly of the *Ville Montagne* Company is advertised to be held on the 14th April, at Angleur, near Liege, Belgium. Holders of 20 shares, at least, will only be admitted.

Allusion was made, in a recent letter, to the fact, that M. de Boissy was about to transfer his forges, &c., to a company, which was to work them on a grand scale. The company is now definitely formed; it takes the name of *Société des Forges du Centre*. Its capital is 15,000,000 fr., divided into 15,000 shares, of 1000 fr. each. Its principal seat of action will be at Vierzou. It is placed under the financial patronage of the eminent banking house of Ganneton and Co., of this city. The forges that it will possess are those of Boissy, Vierzou, Rosieres, Bourges, Clavieres, l'Isle, Virelon, Le Noyer, Les Lavois, &c., &c. The provincial newspapers appear to be delighted at the formation of this great company, and predict immense success for its great enterprise. There is no doubt, that the company will give employ to thousands of persons, and cause immense sums of money to be spent in the province of Berry. There is no reasonable doubt, also, that it will attain great success, if its affairs be conducted with only ordinary prudence, for on its possessions there are large quantities of iron ore, fuel is abundant, and the communications easy and cheap; above all, there is such an immense demand for iron just now, that every bit that can be manufactured is sure of a ready sale, at more than remunerative prices. Besides, the great success of the forges of Decazeville are a certain augury of its prosperity, for they, with infinitely fewer natural advantages, have enriched the gentlemen connected with them.

The new *Compagnie des Hauts-Fourneaux et Forges du Rhone et de la Loire* is continuing to advertise itself very extensively in the newspapers. It proposes to occupy itself principally with the fabrication of rails, and other articles, for railways. It will be established in the midst of the richest coal country of France, and will be able, it says, to obtain fuel at one-tenth of what the iron establishments in other parts of France are compelled to pay; whilst the railways and canals, which abound in the neighbourhood, will afford it unusual facilities for the disposal of its products. The capital is fixed at 3,500,000 fr., in 7000 shares of 500 fr.; 125 fr. per share will be required within eight days after the definitive constitution of the company. Other companies, similar to the above, as I have said before, are being organised, with the view of supplying the vast quantities of iron that are required by the railways, and of obtaining the immense profits resulting therefrom. In point of fact, the attention of capitalists is just now being devoted almost as much to mining matters, and the establishment of furnaces, as to the formation of railways. And it is very natural that it should be, for otherwise it is perfectly certain that, in two or three years time, France would possess several hundred miles of railway, without having a single rail to lay down. Notwithstanding, however, all the outlay that is about to be made, and all the trouble that is about to be taken, it is not to be doubted, that France will never be able to produce herself the millions of tons of iron that her railways will require. I have said the same thing 20 times before, and shall, perhaps, have to say it 20 times again.

The *Compagnie des Mines de la Grande Combe* will hold a general meeting on the 29th March, and an extraordinary meeting on the 24th May. Some details have been published relative to the mines of rock salt, recently discovered in Algeria; but they are not of a nature to call for translation. As, however, an official report on them is promised, it is probable that I shall have to return to the subject hereafter.

The movement in favour of free trade is developing itself more than might have been expected, and is obtaining every day an accession of partisans and adherents. The worst of it is, the French have got no perseverance. They act always from the impulse of the moment, and when the impulse dies away their energy ceases. So it will, no doubt, be with this free-trade movement. It will make a great sensation for awhile, but when its novelty shall have worn off, will cease to excite attention. But, there is no denying, that Sir Robert Peel's measures have caused a great desire for the removal of some of the shackles on commerce, and on no branch of commerce more than on that of iron, and metals. Iron, iron, iron, is the great want of this country just now, as corn is in England; and, accordingly, the most active men in the free-trade movement now afloat, clamour most loudly for a modification of the iron duties. This is clear from the fact, that the free traders have just started a periodical, which they call *Liberte du Commerce*, the first number of which is almost entirely occupied by a reprint of the documents, showing the necessity of a reduction in the duty of iron for the sake of the merchant marine.

The difficulties between the Minister of Commerce and the directors of the Lyons Railway Company have been arranged, by the directors reducing their number from 50 to 35, and by complying with the other requirements of the Minister. A royal ordinance is inserted in this morning's *Moniteur*, sanctioning the company as a *Société Anonyme*—that is, giving it a legal existence.—Paris, March 3.

DISCOVERY OF A MINE OF ROCK SALT IN ALGERIA.—We have, at various times, noticed in this Journal, the recent discoveries which have been made of iron, copper, and lead mines in the French colony of Algeria. From information received, within the last fortnight, it appears that M. Fournel, engineer-in-chief of mines, has found, by exploring in the eastern part of Algeria, that several valuable rock salt mines exist, and he is making out a detailed report on these new riches of the African soil. Already, in the instructions for the geological exploration of Algeria, directed by M. Elie de Beaumont, and adopted by the Academy of Sciences of the 10th of March, 1838, the intelligent author of this important work had given on this subject some details abounding with interest. One of the most curious facts which the deserts of Africa and Asia present, he observes, is, that the soil is frequently saline, and that chloride of sodium is spread in extreme abundance over the soil in Arabia. The earth in nearly the whole extent of the regency of Tunis, is impregnated with such a large quantity of marine salt, that the greater part of the springs are brackish, and salt springs are far more numerous than fresh water; and it is not at all uncommon to see, when the heat of summer has caused the stagnant waters to evaporate in the low grounds, very extensive portions of land covered with this sort of salt incrustation, which the waters of the winter had dissolved and amassed together. These plains are generally called *sibkah* or *shibkah*—that is to say, a space of saline soils. They are generally covered over with water in the winter, and have the appearance of numerous large lakes; but, when they are dry in summer, they resemble large bowling greens or grass plots, covered with the finest verdure. Some of these *sibkahs* have a hard and solid foundation, without any mixture of earth or gravel, retaining the salt which forms a crystallised bed after the rains. Salt mines or beds of this description, exist near Arzew, and in other localities. In the vicinity of Arzew, the water is rather brackish. About two leagues to the south-west of the ancient city, there is an extensive salt lake, which furnishes the greater part of the regency with this mineral, and is inexhaustible; its length is about one league, and fills during the winter with water, and, during the hot season, this water evaporates and becomes crystallised. The *Oued-el-Mailah*, which is on the eastern frontier of the regency of Algiers; the *Serrat*, also on the east of the regency; the *Hammon-Mellwan*, which is at nine leagues to the south-east of Algiers; the saline river of Beni-Abbas, which traverses the territory of the *Deban*; that of the *Urbyah*, near Tetteri-Douch; that which comes from *Jibbel-Wougar*, in the environs of Constantine; the *Milah*, which falls into the marshes of Shott, opposite Mennelash; the *Bareekah*, which runs to Mickowah, and the river *Gor-Bata*, on the confines of Jerced. All these rivers, and numerous other streams and springs of less importance, possess great saline qualities, or are completely brackish. In digging in these salt accumulations, they find various beds of salt, some of only one inch in thickness, and others far exceeding it, which arises from the greater portion of salt which the water has furnished in these beds, and impregnated them with it. There exists a number of salt marshes in the province of Chichouah, near the *Melma*, on the road from Oran to Tlemcen. Shaw, in his travel work on the production of salt, also alludes to the *sibkahs* of

Lowden and the *Kairouan*, the salt pans between Carthage and Gouletta, that of the *morass*, or marsh, of Shott, and the *Sahara*, in its vicinity. M. Desfontaines, likewise, mentions that, a few leagues from Koleah, there was a very large salt lake like that of Arzew. According to Shaw, the mountain called *Jibbel-Had-Duffa*, at the eastern point of the lake Des Marques, or Bahirah-Pharaonne, is entirely composed of salt. This salt is quite different from that of the salt pans, being hard like a stone, and its colour being either red or violet. This mine of rock salt is in the kingdom of beydom of Tunis; but there are several similar ones in the regency of Algiers. The salt mining extension is one of great importance to the French Government.

COMPARISON OF BRITISH CAST METAL WITH THAT OF BELGIUM.—The

Belgic papers have some rather *cerberus* articles on English cast-iron only being admitted in the public contracts which are about to be made at Toulon, and other French ports, in consequence of their superior quality to that of France, or any other country in Europe. It appears that the Belgian Government has considered this so great a point for her mining industry, that it has made a representation to the French Government against the exclusion of Belgic cast metal by the Minister of Marine, and has requested that a fair trial may be given to test the comparative qualities of the two, whether at Toulon, Indret, or any other port in France; and, from the favourable results that may be judged of by experience, they hope that Belgic metal will be admitted under the same facilities. The iron forgemasters have been informed that, if they will come forward (at their own expense), for this trial of their metal with that of England, by giving due notice to the Minister of Foreign Affairs at Brussels, he will take the necessary measures, so that the essay shall be authorised by the French authorities. Belgium has for some time supplied France both with coal and iron, particularly since the introduction of railways; but this is quite a different contract, as the best cast-iron for the building of iron steamers is now required by the French Government; and it is specifically stated, in the *cahier des charges*, or contract tenders, that it is to be English metal, as being the best for that purpose, which the numerous steam frigates and other iron steamers built in this country have proved. The iron of Belgium is well adapted for rails, and for many other purposes; but it is of that brittle nature, that their cast metal can never be put in competition with that of Great Britain.

ON THE TEMPERATURE OF THE EARTH AND SEA.

Mr. S. A. Taylor read a paper on this subject at the Royal Institution: in commencing which, he observed, that the atmosphere is an aerial film surrounding the earth, but, although of almost inappreciable thickness when compared with the earth's diameter, it forms a non-conducting investment resisting the radiation of terrestrial heat into space. The mean density of the earth, according to Bailey, is 5.66, or about twice 2.8, the density of rocks and strata constituting its surface. We infer from hence that the mass of the earth must be formed of materials lighter than the common metals, as iron, tin, lead, &c. Its specific gravity falls between that of titanium and tellurium. From careful inquiry it appears that the temperature of the surface of this planet depends entirely on heat acquired from the sun. Part of the heat thus received is conducted to a certain depth below the earth's surface; and part radiates into space. The greatest natural cold on the surface was observed by Erman at Yakutsk, the capital of Eastern Siberia, where the thermometer stood at 72 deg. below the zero of Fahrenheit. The temperature of space beyond the limits of the atmosphere must therefore be much colder—too cold to admit of the maintenance of life under its present conditions. The heat of the sun penetrates the earth to but a very small depth. Diurnal variations of temperature are not perceived below two or three feet, while the annual variations do not affect the earth's crust below 1-400,000th of the diameter of this planet. On the alternate heating and cooling of this film of depth depend the vicissitudes of climates, seasons, and cycles of years. Mr. Taylor then stated, that, at a certain depth below the earth's surface, there is a stratum at which the thermometer is almost stationary. This stratum is consequently termed the *stratum of invariable temperature*. The depth of this stratum depends—1st, on the directness with which the sun's rays fall; and, 2nd, on the conducting power of the superficial strata. It must, therefore, be different in different localities. At Paris the depth of this stratum has been accurately ascertained to be 90 feet below the surface, at which depth the temperature has, for 50 years, remained constant at 53 deg. Fah. In other different parts of the world, this stratum varies in depth from reasons already assigned. In the tropics, it is three or four feet, in the temperate regions from 55 feet to 60 feet below the surface, while in the regions of extreme cold, solar influence does not extend beyond three or four feet, the ground below this depth being found always frozen, to the extent of 400 feet. Generally, however, the temperature of this invariable stratum differs but little from the mean temperature of the place. Mr. Taylor then directed attention to the important and universal truth, that, when carried below this stratum of invariable temperature, the thermometer rises. This rise is not, however, the same at all depths in all places. As there are *iso-thermal* lines on the earth's surface, so there are *iso-geothermal* lines beneath it. Many localities, as five of the principal mines in Cornwall, the well of Grenelle, at Paris, the Monkwearmouth mine of Sunderland, Joseph's Well at Cairo, &c., were noticed as indicating the great curvature of the *iso-geothermal* line. The theory of the existence of internal heat was then established from—(1) the progressive rise of the thermometer in descending into mines and other excavations; (2) the high temperature of the water of artesian wells; (3) the high temperature of natural thermal baths or springs; (4) the phenomena of volcanic eruptions and earthquakes. From accurate examination of these sources of inquiry, there has been found that the thermometer rises in mines one degree for about every 50 feet of depth; a result confirmed by the fact that the temperature of water in artesian wells increases in about the same proportion to their depth. The heat of thermal springs has been found equal to that of boiling water, and the perfectly fused condition of substances ejected from volcanoes indicates a temperature of 1000 deg. The opinions of various philosophers respecting the cause of the central heat of the world were reviewed. Buffon held that the earth was a vitrified ball in the act of cooling; Leslie and Halley that it was a hollow sphere, made up of stories like a house; others, that the interior of the earth is in a perfectly molten state, the heat at twenty miles below the surface being sufficient to melt granite. Having pointed out the objections to these various hypotheses, Mr. Taylor affirmed, as an apparently certain fact, that this internal heat does not affect the temperature of the earth's surface. He particularly dwelt on a calculation made by Arago, that if in the period of 2000 years the earth had cooled only 1-800th of a degree, the fact would have been indicated by a difference in the length of the day, in consequence of that contraction of its diameter, which any diminished temperature of that planet would have occasioned. Mr. Taylor quoted also records which proved that the climate of Tuscany has undergone no change during the last 2000 years. With respect to the temperature of the sea, many difficulties are offered to accurate observation. The uncertainty as to the depth to which thermometers can be sunk, the influence of cold and warm currents, the laws regarding the circulation of heat in liquids, and the effects of heat on the density of water, present serious obstacles to accurate results. The most careful observations and calculations give an oceanic temperature of from 28 deg. to 44 deg. It is probable that the submarine strata are sufficiently thick to prevent the free conduction of central heat; while the effects of heat on the density of water, together with its rapid diffusion throughout the mass of the ocean, would render a high temperature imperceptible at any one point. On the other hand, the abundance of insular volcanoes sufficiently testifies the existence of igneous matter beneath. From these considerations, Mr. Taylor concluded—1. That, at a certain depth below the surface of the earth, there is a source of heat which increases as we descend. 2. That this heat cannot be derived either from the sun or from chemical changes. 3. That this heat neither perceptibly affects climates or seasons, nor influences the temperature of the surface of the earth, nor of the depths of the ocean, nor of the atmosphere. 4. That the vicissitudes of climates and seasons are entirely referable to solar influence. 5. That this influence, even at its maximum, does not penetrate below 1-400,000th of the earth's diameter. 6. That, although we have positive evidence that subterranean heat exists, we can neither measure its intensity, nor determine the exact ratio of its increase towards the centre of the earth. 7. That there is no evidence to show that the earth is gradually cooling from a high temperature.

COAL MARKET, LONDON.

MONDAY.—Price of coals per ton at the close of the market:—Adair's Main 13 6—Bate's West Hartley 13 6—Buddle's West Hartley 14 9—Carr's Hartley 15—Davison's West Hartley 15—Hollywell Main 15—Old Penton 13 6—Jansfield Moor 16—Towney 13 6—Wyllan 14 3—Wall's End Bewick and Co. 14 3—Gibson and North Durham 13—Gosforth 14 3—Heaton 14 3—Hebburn 13 9—Killingworth 14—Newmarket 13—Eden Main 14 3—Belmont 14 6—Bradley's Heaton 15 6 to 15 9—East Hutton 13 9—Haswell 16 3—Hutton 15 6—Lambton 15—Russell's Heaton 15 6—St. Helens 15 6—Stewart's 15 6 to 15 9—Caradoc 15 6—Hough Holland 14—Acheside 15—St. Helens 15 6—Seymour Toss 14 6—Whitworth 13—Cowpen's Hartley 15—Ships at market 87; 55 sold, 32 unsold.

WEDNESDAY.—Adair's Main 13 6—Bate's West Hartley 13 6—Buddle's West Hartley 15—Hollywell Main 15—Ord's Redbough 13 6—Towney 13 6—Wyllan 14 3—Wall's End Bewick and Co. 14 3—Gibson and North Durham 13—Gosforth 14 3—Heaton 14 3—Hebburn 13 9—Killingworth 14—Newmarket 13—Eden Main 14 3—Belmont 14 6—Bradley's Heaton 15 6 to 15 9—East Hutton 13 9—Haswell 16 3—Hutton 15 6—Lambton 15—Russell's Heaton 15 6—St. Helens 15 6—Stewart's 15 6 to 15 9—Caradoc 15 6—Hough Holland 14—Acheside 15—St. Helens 15 6—Seymour Toss 14 6—Whitworth 13—Cowpen's Hartley 15—Ships at market 87; 55 sold, 32 unsold.

FRIDAY.—Bate's West Hartley 13 6—Buddle's West Hartley 15—Davison's West Hartley 15—New Tansfield 13 6—Original Tansfield 13 6—Ord's Redbough 13 6—Towney 13 6—Wyllan 14 3—Wall's End Bewick and Co. 14 3—Gibson and North Durham 13—Gosforth 14 3—Heaton 14 3—Hebburn 13 9—Killingworth 14—Newmarket 13—Eden Main 14 3—Belmont 14 6—Bradley's Heaton 15 6 to 15 9—East Hutton 13 9—Haswell 16 3—Hutton 15 6—Lambton 15—Russell's Heaton 15 6—St. Helens 15 6—Stewart's 15 6 to 15 9—Caradoc 15 6—Hough Holland 14—Acheside 15—St. Helens 15 6—Seymour Toss 14 6—Whitworth 13—Cowpen's Hartley 15—Ships at market 89; 59 sold, 30 unsold.

Current Prices of Stocks, Shares, & Metals.

STOCK EXCHANGE, Saturday morning, Twelfth of Oct.	
Bank Stock, 7 per Cent., 206 1/2	Dutch, 2 1/2 per Cent., 59 1/2
3 per Cent. Reduced Ann., 96 1/2	Brazilian, 5 per Cent., New, 52 1/2
3 per Cent. Consols Ann., 95 1/2	Cuba Bonds, 6 per Cent., —
2 1/2 per Cent. Ann., 94 1/2	Chilian, 6 per Cent., —
Long Annuities, 10 1/2 11-16	Colombian, 6 per Cent., —
India Stock, 10 1/2 per Cent., —	Mexican, 5 per Cent., 30 1/2
3 per Cent. Consols for Acc., 95 1/2	Spanish, 5 per Cent., 26 1/2
Exchequer Bills, 1000l., 32 1/2 pm.	Portuguese, 4 per Cent., 57
Belgian Bonds, 4 1/2 per Cent., 97 1/2	Russian, 5 per Cent., 107 1/2

MINES.—Business in mining shares has maintained considerable firmness during the week, and from our general mining intelligence it will be found that continual and valuable discoveries are being made in the west of England, particularly in the neighbourhood of Tavistock. The report of the Callington Mining Company will be found in another column, the result of the past year's workings of which has been most successful, and the prospects of the most cheering nature to the shareholders. The Cornubian Company were deputed to proceed to Cornwall to inspect the sets of the company, and that of expenses incurred.

RAILWAYS.—The share market during the week has been unusually dull, and even the old established lines have had considerable difficulty in maintaining their prices. This, then, the depression that generally prevails in the money market is the principal cause of the stagnation which has been entered into either in old or newly projected lines have been on a very limited scale, and seldom has the share market presented a stagnant appearance. Foreign shares have experienced the same apathy, and, as will be seen by our share list, but little has been done in any of them, and prices are lower than our last.

Railway business has been rapidly progressing through both Houses and the sub-committees, and a large number of the bills for several of the leading projected lines, having complied with the Standing Orders, have been read a first and second time.

MESSES. LAMOND'S SALES.—TUESDAY.—Dutch Hanoverian (21. pd.), 21. 4s.; Great Western of Bengal (5s.), 12s.; East Indian (5s.), 19s.; Direct Northern (21. 10s.), 21. 2s. 6d.; Goole and Doncaster (21. 2s.), 21. 1s.; North Stafford, Churnet, and Poteries (21. 2s.), 21. 1s.; North Kent (21. 10s.), 21. 1s.; 12s.; Jamaica Junction (11. 3s.), 12s.; Vale of Neath (21. 1s.); Dublin and Galway (41. 3s.); South Staffordshire Junction (21. 10s.), 21. 1s.; South Midland (21. 2s.), 21. 1s.; Blackwall Extension (31. 3s.), 31. 3s.

FRIDAY.—South Midland (21. 2s. pd.), 31. 1s.; Direct Northern (21. 10s.), 21. 2s.; Liverpool, Ormskirk, and Preston (21. 10s.), 21. 1s.; South Wales (51. 4s.), 41. 10s.; Scottish Midland (51. 4s.), 41. 10s.; Goole and Doncaster (21. 2s.), 21. 1s.; Northern and Eastern, new (11. 3s.), 12s.; North Wales Mineral, new (31. 4s.), 41. 10s.; London and Manchester—Rastrick's (51. 4s.), 41. 10s.; Jamaica Junction (11. 3s.), 12s.; North Kent (21. 10s.), 21. 1s.; London and York (21. 10s.), 21. 1s.; 12s.; Buckinghamshire (21. 2s.), 21. 1s.; Tyne (21. 10s.), 21. 1s.; 12s.; Liverpool, Manchester, and Newcastle-upon-Tyne (21. 10s.), 21. 1s.; 12s.; Whitehaven and Furness (41. 4s.), 41. 10s.; Dunstable (51. 4s.), 41. 10s.; Calcutta and St. George's Point (7s.), 7s.; Manchester and Southampton (21. 2s.), 21. 4s.

LEEDS, THURSDAY.—We have a continuance of the depression in the market which has characterised the last few weeks still to note, and the American news has added a further element of uneasiness. The large majority Sir Robert Peel obtained on Friday last, gave a little tone to the market on Saturday and Monday, but since then appearances have been unfavourable. The Manchester and Leeds declared a dividend after the rate of 8 per cent. per annum yesterday. Considerable dissatisfaction was expressed at the failure of the West Riding Bill, but the directors denied that there had been any intention on their part to impede the progress of the bill; it is estimated that there would be a strong movement made in the House to get the bill re-committed, with what success remains to be seen. All our local stocks are heavy; there has been some demand for Matlocks to-day at 40s. pm. Leeds and Thirsk, Leeds and Dewsbury, and Huddersfield and Sheffield, as also Wakefield, Pontefract, and Goole, are nearly unsaleable.

R. B. WATSON, TOTTAL, & BARFF.

PRICES OF MINING SHARES.

BRITISH MINES.				BRITISH MINES—continued.			
Shares.	Company.	Paid.	Price.	Shares.	Company.	Paid.	Price.
235	Andrew and Nangles	25 1/2	60	256	South Wheal Rose	2	36
1000	Barristown	22 1/2	30	256	St. Austell Consols	6	25
4000	Bedford	23 1/2	5 1/2	1000	Starry Park	43	21
128	Besore Lead Mine	—	35	9600	Tamworth Consols	3	6
320	Birch Tor Tin Mine	10 1/2	12	6000	Tincroft	—	16
1000	Blacknave	50	40	256	Ting Tang	67	67
100	Bullack	175	300	128	Toburn	124	84
120	Brewer	—	20	1024	Trelawney Consols	14	2
10000	British Iron, new regis.	10	25	5000	Trevelyan Consols	6	3 1/2
—	— Ditto ditto, scrip	10	21	256	Trenow Consols	—	170
128	Budnick Consols	—	30	64	W. W. W. Maria	10	300
100	Bwlch Cwmerfan	20	200	128	W. W. W. Maria	61	130
1000	Callington	19	30	128	Trevelyan and Bann	61	130
256	Caradoc Consols	45	80	128	Trevelyan	12	25 1/2
256	Caradoc Copper Mine	9 1/2	6	4000	United Hills	5	4
256	Caradoc United	4	36	100	United Mines	300	900
256	Caradoc Wh. Hooper	19	20	128	West Basset	10	25
1000	Carn Bre. Hooper	15	100	256	West Caradoc	20	375
114	Charlestown	—	240	128	West Gairol	3	15
256	Chryzape	—	50	512	West Fawcett Consols	40	35
1900	Comberton	5 1/2	8	—	West Fawcett Consols	—	25
5000	Con. Tread Milling Ass.	31	1 1/2	256	West Providence	—	40
128	Cundorow	—	28	200	West Seaton	—	40
256	Cook's Kitchen	—	28	128	West Threlkell	5	40
1000	Copper Bottom	1	5	256	West Wh. Jewell	2	11
1000	Cornubian Lead Co.	3	1 1/2	8448	West Wh. Jewell	11	24
128	Cosheen	20	200	256	West Wh. Mitchell	—	30
240	Cradock Moor	9	65	256	West Wh. Mitchell	—	30
128	Croft Brays	120	80	256	West Wh. Mitchell	—	30
100	Cubert Mine	10	26	256	West Wh. Mitchell	—	30
1000	Darwin County Coal	1	45	256	West Wh. Mitchell	—	30
128	East Pool	5	55	256	West Wh. Mitchell	—	30
9000	East Tamar Consols	1	2 1/2	256	West Wh. Mitchell	—	30
256	East Wharfedale	1	3	256	West Wh. Mitchell	—	30
94	East Wharfedale	6	12 1/2	256	West Wh. Mitchell	—	30
256	East Wharfedale	—	450	1024	West Wh. Mitchell	31	3
128	East Wharfedale	30	150	256	West Wh. Mitchell	14	20
128	East Wharfedale	21	16	256	West Wh. Mitchell	23	60
512	Fowey Consols	—	80	256	West Wh. Mitchell	17	16
20000	Galvanised Iron Co.	10	10	128	West Wh. Mitchell	—	21
10000	Gen. Mining Co. for Irel.	—	35	100	West Wh. Mitchell	23	25
128	Gosnold	19	120	256	West Wh. Mitchell	7	11
128	Gover	3	20	256	West Wh. Mitchell	6	36
244	Graham & St. Aubyn	—	40	256	West Wh. Mitchell	11 1/2	5
100	Great Consols	1600	400	1024	West Wh. Mitchell	—	550
256	Great Consols	—	11	4000	West Wh. Mitchell	4	4
256	Great Mitchell Consols	—	20	1024	West Wh. Mitchell	—	1
100	Groswinning	5	2	1024	West Wh. Mitchell	—	1
1000	Gunn's Lake	14	3	256	West Wh. Mitchell	15	14
128	Hall's Lead	—	50	256	West Wh. Mitchell	3	6
1000	Hansell	—	50	256	West Wh. Mitchell	9	12
1000	Harrowbarrow Old Mine	24	2 1/2	128	West Wh. Mitchell	—	5
1000	Harrowbarrow Consols	24	2	128	West Wh. Mitchell	—	5
800	Hawthorn	3	10	128	West Wh. Mitchell	—	5
6000	Helgston Down Cen.	1	2	128	West Wh. Mitchell	—	5
856	Herodsfoot	9	14	128	West Wh. Mitchell	—	5
1000	Hibernian	124	1	128	West Wh. Mitchell	—	5
1000	Holbeck	—	26	128	West Wh. Mitchell	—	5
56	Ivy Tor	11	5	128	West Wh. Mitchell	—	5
100	Kirkcubrightshire	11	14	128	West Wh. Mitchell	—	5
48	Lamerhouse Wh. Maria	2	1	512	West Wh. Mitchell	13	20
38	Lanarth & Penstruthal	—	150	99	West Wh. Mitchell	150	750
30	Larkholms	1	3	256	West Wh. Mitchell	35	80
100	Levant	—	100	128	West Wh. Mitchell	21	50
20	Lewes	3	3	128	West Wh. Mitchell	19	25
90	Mackay Valley	10	7 1/2	999	West Wh. Mitchell	74	183
10	Mining Co. of Ireland	7	12 1/2	256	West Wh. Mitchell	4	3
90	Nant-Air-Nelle	—	12	256	West Wh. Mitchell	21	6
10	Nantterrow Consols	104	12	198	West Wh. Mitchell	21	10
38	North Fowey Consols	10	30	256	West Wh. Mitchell	3	6
10	North Holmbush	—	15	137	West Wh. Mitchell	—	20
10	North Fox	11	67	1024	West Wh. Mitchell	24	4
6	North Trebochar	104	600	256	West Wh. Mitchell	4	31
6	North Trestogart	24	4				
10	North United	41	45				
8	North Wh. Providence	21	10				
10	North Wheal Rose	22 1/2	40				
90	Northern Coal Co.	23	30				
0	Old Delabole Slate Co.	25	45				
6	Par Consols	15	5				
6	Penallbarrow Cons.	15	500				
10	Penrhyn	30	60				
6	Pen-y-Cefn Mine	50	55				
6	Plymouth Wh. Yeoland	14	31				
6	Rhymney Iron	50	33 1/2				
6	Rosecliff Mill	10	7				
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6	Rosecliff Mill	10	7				
6	Rosecliff Mill	10	7				
6	Rose						

COPPER ORES.

NOTICES TO CORRESPONDENTS.

Sampled 2 1/2, and sold at Sorrell's Hotel, Pool, March 5, 1846.

Mines.			Tons.			Price.			Mines.			Tons.			Price.		
North Roskear	117	£3	15	6	Fowey Consols	60	£2	5	0				
ditto	93	....	6	6	0	ditto	69	....	4	13	0				
ditto	86	....	5	6	0	ditto	53	....	3	6	0				
ditto	82	....	7	10	0	ditto	57	....	5	3	0				
ditto	79	6	10	0	East Wh. Crofty	80	5	3	6					
ditto	78	....	8	12	0	ditto	53	....	4	10	6				
ditto	63	....	5	10	6	ditto	50	....	4	13	0				
ditto	51	....	6	16	6	ditto	20	....	13	3	0				
ditto	49	7	7	6	Longlose	28	4	12	0					
Consolidated Mines	91	9	9	0	South Wh. Basset	98	6	6	0					
ditto	89	....	6	9	6	ditto	69	....	4	6	0				
ditto	84	....	6	17	6	ditto	54	....	6	15	0				
Consolidated	83	5	2	0	South Roskear	57	5	6	0					
ditto	56	6	6	0	Wheel Chance	73	5	7	6					
ditto	51	....	3	18	6	ditto	70	....	6	9	0				
ditto	46	5	13	0	Wh. Harriet	75	3	18	6					
ditto	45	....	3	19	0	ditto	57	....	5	6	6				
ditto	40	....	3	17	0	ditto	55	....	4	9	0				
Tincroft	70	5	16	0	Dolcoath	68	1	14	0				
ditto	68	....	4	12	0	ditto	53	....	4	17	6				
ditto	61	....	10	1	6	ditto	48	....	2	6	0				
ditto	60	2	18	0	Wh. Clifford	72	3	13	6					
ditto	53	....	3	13	6	ditto	49	....	6	19	6				
ditto	53	....	3	4	6	ditto	12	....	4	6	6				
ditto	45	1	0	0	Creeg Brawe	60	5	16	0					
ditto	28	....	1	14	0	ditto	30	....	4	3	6				
Hallenbeagle	103	3	17	6	ditto	20	4	4	0					
ditto	86	4	9	0	Ting Tang Consols	86	3	4	6					
ditto	73	1	16	6	St. Austell Consols	52	2	27	6					
ditto	70	1	4	0	South Wh. Francis	50	10	10	0					
ditto	61	2	1	6	North Pool	35	5	3	6					
ditto	40	7	18	6	Wh. Tryphen	13	8	0	0					

TOTAL PRODUCE.

North Roskear	.....	700	....	£433	16	0	Wh. Harriet	.....	187	....	£ 842	13	0
Consolidated	.....	385	....	359	2	6	Dolcoath	.....	169	....	485	11	0
Tincroft	.....	440	....	1573	0	6	Wh. Clifford	.....	133	....	658	5	6
Hallenbeagle	.....	432	....	1446	0	0	Creeg Brawe	.....	110	....	557	5	6
Fowey Consols	.....	247	....	924	8	0	Ting Tang Consols	.....	86	....	277	7	6
East Wh. Crofty	.....	240	....	1324	14	0	St. Austell Consols	.....	52	....	226	4	0
Longlose	.....	28	....	1	0	0	South Wh. Francis	.....	50	....	525	0	0
South Wh. Basset	.....	221	....	1278	12	0	North Pool	.....	35	....	53	7	6
South Roskear	.....	200	....	1144	11	0	Wh. Tryphen	.....	13	....	104	0	0
Wheel Chance	.....	200	....	1144	11	0							

Average standard, 112 1/2 ss.—Average produce, 61.—Average price per ton, 57. 6s. 0d.—Quantity of ore, 3900 tons.—Quantity of fine copper, 270 tons 10 cwt.—Amount of money, 19,643. 14s. 0d.—Average standard of last sale, 110 1/2. 10s. 0d.—Average produce ditto, 7.

COMPANIES BY WHOM THE ORES WERE PURCHASED.

	Tons.	Amount.				
Mines Royal	211	£1323	5	6	
English Copper	602	3959	0	0	
Vivian and Sons	294	294	885	8	
Freeman and Co.	602	294	2937	6	
Greenfell and Sons	606	606	3668	9	
Sims, Williams, and Co.	628	628	3001	18	
Williams, Foster, and Co.	1078	1078	5458	6	0

Total tons 3900 £19,643 14 0

Copper ores for sale on Thursday next, at Andrew's Hotel, Redruth.—Mines and Parcels.—Carna Brea Mines 507—Wheal Prosper 350—United Hills 332—Par Consols 320—Levant 325—Trenow Consols 122—Dolcoath 171—Wheal Busy 98—Wheal Threan 665—Wheal Buller 44—Wheal Rodney 17—East Reilian 4—Wheal Weeth 3—East Crumlin 1.—Total, 2330 tons.

Copper ores for sale on Thursday next, at Pearce's Hotel, Truro.—Mines and Parcels.—Wheal Maria 1003—West Caradon 427—South Town and Wheal Lydia 301—Pol-de 300—Fowey Consols 290—Wheal Jewel 121—Wh. Jewel 120—Bedford United Mines 101—Holmbush 95—Wheal Maiden 53—Tregothman Consols 2.—Total, 2815 tons.

COPPER ORES

Copper ores for sale, March 11.—Knockmahon 120, ditto 116, ditto 115, ditto 111, ditto 85, ditto 86, ditto 77, ditto 76, ditto 71, ditto 70, ditto 31.—Santiago 93, ditto 86, ditto 57, ditto 76, ditto 71, ditto 59, ditto 44.—Cobre 110, ditto 108, ditto 106, ditto 90, ditto 66.—Bullymaragh 71, ditto 66, ditto 60, ditto 49, ditto 35, ditto 11, ditto 9.—San Jose 109, ditto 101, ditto 81, ditto 72, ditto 29.—Berehaven 121, ditto 120, ditto 100.—Crombane 53, ditto 50, ditto 37, ditto 26, ditto 23, ditto 12.—Cloga 68, ditto 45, ditto 44, ditto 40, ditto 9.—Havana 72, ditto 61.—Llandinno 76.—Lackamore 60, ditto 8.—Hafodyllan 41, ditto 9.—Arduilly 46, ditto 2.—Vigra and Cloga 18, ditto 16.—Gloster Slag 17, ditto 3.—Sicilian 2.—Total 3780 tons.

BLACK TIN
Sold on the 25th February, 1846.

Mines.			Tons.			Price.			Mines.			Tons.			Price.		
Charlestown	.....	214	....	£52	7	6	£1139	3	1.	Dunbar; Bolitho; Williams	.....	251	....	3	1.	Bolitho; Williams.
ditto	.....	44	....	53	17	6	.....	251	3	1.	Bolitho; Williams.	.....	38	0	0.	Dunbar.
ditto	.....	1	....	52	0	0	.....	38	0	0.	Dunbar.	.....				
Total tons, 27 1/2.—Amount of money, £1428 6s. 3d.																	

LATEST CURRENT PRICES OF METALS.
LONDON, MARCH 6, 1845.

IRON—BARR.				WELSH IRON.				SCOTCH IRON.				RUSSIAN IRON.				SWEDISH IRON.				AMERICAN IRON.				ZINC.				COPPER.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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cash free on board at Glasgow, having been repeatedly offered and refused.—Foreign tin and steel dull of sale.—English and Foreign tin quiet buyers expecting lower prices. Tin plates flat, at our quotations.—No transactions reported in Spelter price nominally 37. 15s.

MONTLY REPORT.—Spelter has again declined during the month, several parcels having been sold at 19l. 8s., to 19l. 10s. per ton, on the spot, and some sales for spring shipping are reported to have been done at 20l.—The shipments to India during the month have been

To Madras and Calcutta	tons 368
Bombay	211
China, Singapore &c.	5
Total	584

Stock in London 1st March, 1846—tons 4220

During the last month all descriptions of iron have been sold at lower prices than last noted.—In bars very little is doing for exportation.—Rails have not been in such active demand during the past month as in January, and the price may be considered 17 per cent lower, chiefly owing to speculative parcels being forced on the market.—Scotch pig iron has declined from 90s. to 75s. per ton, and the same extension of sale has been made in the course of the month at prices lower than last quotations.—Swedish is much more the whole of the speculators' iron having been cleared off the market.—Holders are now asking 11l. 10s. per ton.—Swedish steel continues flat, and little or no business doing.

The demand for copper has been very limited for the last month, for India, but large lots have been made for France.

Tin plates continue to decline, owing to large parcels being pressed on the market. English black tin, and snags, unaltered; Straits and Banca 1s. to 2s. per cwt. lower. English pig lead is a shade higher, and in good demand; no Spanish stock, and only a parcel of American lying at Liverpool, for which 19l. is asked.

GLASGOW IRON TRADE.

MARCH 3.—The market continues in the same depressed state, but few transactions taking place. The price may be quoted at 75s. 6d. Present prices have given rise to several inquiries for export orders, which trade is expected to be large this spring.—*Not.*

**EXPORTS OF METALS TO INDIA FROM LONDON AND LIVERPOOL,
FOR THE FIRST TWO MONTHS OF 1845 AND 1846.**

<i>Metals.</i>	<i>1845.</i>	<i>1846.</i>	<i>In. in 1845.</i>	<i>Dec. 6th 1846.</i>
<i>Spelter</i>	7423	922	100	—
<i>Copper</i>	629	638	9	—
<i>tin, British</i>	3050	506	—	2454
<i>tin, foreign</i>	254	338	144	—
<i>Tin plates</i>	2194	1025	—	1569
<i>and</i>	236	107	—	189
<i>Steel</i>	396	131	—	385
<i>Iron</i>	33	—	—	—

THE MINING JOURNAL
And Atmospheric Railway Gazette.
LONDON, MARCH 7, 1846.

If it were necessary to illustrate our remarks, by citing a case in point, we have only to direct attention to the London and Manchester Direct Line. We have carefully watched the proceedings in committee, and although the objections were trivial in themselves, not one touching the case as affects its importance, while no disadvantage or injury was attempted to be shown by the evidence adduced; yet, on some paltry objections, as to the Standing Orders not having been complied with, the bill has been, for this session, thrown out, without its merits being for a moment considered, or the interests of those, who have either contributed their funds, or who may possess properties, or works, calculated to be advanced by the proposed line. Here have we 500,000*l.*, or nearly so, subscribed by way of deposits, and 250,000*l.* by REMINGTON's line, with which this was amalgamated. We find, also, the names, not only of capitalists, but those connected with our manufactures in London and Manchester, and the several districts with which the line is connected; and, withall, the bill is thrown out—because they have not complied with the Standing Orders—the reasons, forsooth, being that a sleepy clerk, after much fag, having omitted to insert a figure, in the original, or a clerical error appearing in any other shape. Alas, we must say, too bad; but we hope, with the Premier's free-trade principles, he will, in the next session, admit something of that principle, which appears to influence him, to have effect as regards railway legislation.

It will, doubtless, be in the memory of most of our readers, that one of our first expositions of fraud was that of the West Cork Mining company, and that, in consequence of which, certain proceedings were taken against this Journal by the veritable JOSEPH PIKE, formerly the agent, and, subsequently, the executor of the late Lord AUDLEY, with the view of crushing investigation and further exposure. The result is, in like manner, known—the proceedings were taken against the Journal, and, on application to the Court, this queer fellow (not the only one connected with the mines of Ireland) was decreed to pay the costs. The main features, which the case presents, and we will narrate them as briefly as possible, are simply these:—Lord AUDLEY, being in a “fix,” had a valuation made of his property in Ireland, and, accordingly, Mr. ADAM MURRAY reports the value of the land, and mineral ground, to be worth something like £100,000, which may be assumed as an extreme valuation, of which Mr. MURRAY treats the latter as equal to one-fifth of the gross amount, or only 20,000£. JOSEPH PIKE, a scholastic agent, and an “honest” man, tenders and renders his services to Lord AUDLEY, and accordingly forms a company, which agrees to purchase, at the sum of 15,000£, the minerals on his lordship’s estate. Such being in fact,

the total amount of capital; although, it is most true, the company, having obtained an Act of Parliament, had a right to borrow—if they could. Of this sum 110,000*l.* was to be paid in money, and 55,000*l.* was to be taken as paid up shares; and, accordingly, a prospectus was issued, and certain directors, including a worthy alderman of the present day, the clerical tutor of his lordship's sons, a certain gentleman connected with the scholastic agency, and others, as "tools," were put forward, the modicum received by each being confined to a gratuitous gift from Lord Audley of 15 of his paid-up shares, being, in other words, 750*l.*, and thus qualifying them, by the shares so appropriated, to an independent seat at the board, whereby they were in a position to sign cheques in favour of his lordship, and the veritable *Pixie*. Certain reports were made; abuses were said to exist, and, in the first instance, exposed, and public attention drawn thereto through our columns. It was said that we were influenced by parties, or from private motives—however, no matter, it was, we admit, somewhat difficult to get those most interested to entertain the charge; but, in the end, "One and All" found to their cost, that their confidence had been abused, and that a fraud had been perpetrated. Certain legal proceedings in the Law and Equity Courts, and even an appeal to the House of Lords, was the result, and after having well considered the terms on which the Act for regulating the proceedings of the company was couched, it was found that the shareholders were not personally liable for the claim put forward by Lord Audley and his executor, for the residue of the purchase money, which, with interest, amounted to nearly 80,000*l.*, and hence the satisfactory result, recorded in our columns of to-day. It is, we believe, some 10 or 12 years since the fraud was perpetrated, and it is not much more than 12 months since that the question was determined in favour of the shareholders. During the greater part of this time, the legal proceedings resorted to continually occupied the attention of some of the principal shareholders, who had been made the dupes, and who had succeeded in ousting the "original" directors, and forming among themselves a new committee, for the protection of the shareholders; and not only was much time devoted, but a serious responsibility incurred, as regards the expenses attendant on the course pursued.

It is now about 12 months since, that it was stated by the chairman at a public meeting, that there was a debt of some 10,000*l.* owing (as a balance of account) to their solicitors, and others, without any funds being in hand, whereby it might be liquidated, and a resolution was accordingly come to (which may be said, indeed, to have been rather an appeal to the shareholders at large, to do that which was right and honourable)—viz., to subscribe in proportion to the interest they might hold, with the view of settling the claim; and this appeal, we are proud to say, has been nobly responded to—upwards of 85,000*l.* having been voluntarily subscribed, while the balance is in course of payment, and thus the company will be relieved, and all parties released from responsibility, ere another six months elapse. We now arrive at a point which must be gratifying to all, whether interested or otherwise, as regards the company. It is well known, that in the early days of the exposure of the fraud, and measures being adopted by the shareholders for their protection, Mr. W. R. VIGERS was the leader—he it was who was to be found in the foremost ranks; and not only did he expose himself to the fire of the enemy, but, as a bold, yet cautious, general, he so marshalled his forces, and, at the same time, secured his post by a ready supply of ammunition, that, after a time, he was enabled to withdraw from active operations, and leave to his able and zealous coadjutor, Mr. W. D. WITTON, the pursuit of the foe, and to which latter gentleman is, in a great measure, to be attributed the present gratifying result, arising, not only from the indomitable energy, but the prudence which has influenced his every step. We are glad to find a recognition of this line of conduct on the part of the proprietors, who have determined to present to that gentleman a testimonial of the respect they feel due, and the gratitude they owe, for the services thus rendered. We recollect a similar instance in the case of the unfortunate Arigna Iron and Coal Company (another Irish job), when Messrs. ROBERT HICHENS and JOHN MOXON received, at the hands of the shareholders, two splendid pieces of plate, as a testimony of the admiration of the shareholders of the honourable and meritorious conduct they had pursued, in exposing the frauds practised in that company. It is truly pleasing thus to record instances of this nature, which are as honourable to the donors, as are they to the recipients, and more especially so, when we reflect that, in the present instance, a sum of no less than 200,000*l.* has been sacrificed.

There is one fact, to which we especially are anxious to direct the attention of our readers—viz., that the property for which this unfortunate company were to have paid the enormous sum of 165,000*l.* (though valued by Mr. MURRAY at only 20,000*l.*), was, in the course of the legal proceedings, put up for sale in the Chancery Master's Office, in Dublin, and not a single bidder appeared, although, we believe, four hundred pounds was offered *bona fide* for the mines, and all their appliances, after the sale, and though the company had paid to Lord Audley, in hard cash, the sum of 60,000*l.* on account of the purchase money. When the company found it necessary to quit possession of the property, his lordship's representatives refused to accept possession, and the company thereupon, under legal advice, abandoned the property, and, we believe, it remains to this day without ever having attracted public attention. We trust that costly lessons, such as these, will have their full effect, as guarding against frauds; while, we doubt not, honest exertion will ever be proudly acknowledged and responded to by the shareholder.

In another column will be found a comparison of English iron with that of Belgium, and the decision of the executive of the French Government have come to, with respect to the admission of foreign iron, speaks volumes in behalf of the English iron-master. All contracts which are in future to be made at the Port of Toulon or others on the Mediterranean for iron to be used in the building of steam vessels, are to be exclusively confined to English cast-iron, as being superior to any in Europe. This acknowledgement of superiority by a rival in the useful arts, has at once put Belgium on her metal, and her government has made a representation to that of France, requesting a trial of the respective qualities of iron manufactured in England and Belgium, and suggesting, that should such trial prove favourable to the latter, that her iron may be admitted on the same terms as the former. We need not inform our scientific readers, that in regard to a comparison of the better sorts of cast iron, Belgium would not stand a shadow of a chance with England, her ores producing a metal, which, although, favourable for general purposes, is brittle, and cannot be depended on in important works where strength and toughness is required; and France is well aware of the superiority of English iron, over her own production as well as that of Belgium, and it is this knowledge which has decided the Government in admitting no other iron for the highly important uses of constructing their steam navy.

THE SALT TRADE IN FRANCE.—This important subject has for a long time attracted the attention of the leading men in France, and many petitions have been presented to the Chamber of Deputies at various periods, praying for a great reduction to be made in this Government monopoly, as being highly detrimental to commercial enterprise, by preventing a branch of industry—that of salting meat and fish—which is most material to the navy and the poorer classes of the population, from having that development which it otherwise would have, was the tax upon salt reduced. This monopoly of making salt, being entirely in the hands of the Government, is one most lucrative to the revenue; the same in Belgium, Holland, Austria, and the northern states of Europe, Spain, Portugal, Italy, and the south. For the last 25 to 30 years many attempts have been made by the industrial merchants, to induce the Government to alter so oppressive a

tax on the health and prosperity of the country at large, but hitherto without success. Since France has had possession of Algeria, a very considerable quantity of salt is exported annually to that colony, by the Government, who derives an immense profit on the article, which, if in the hands of private individuals, would not only be made of a superior quality (as at present it is the most inferior of any in Europe), but would rapidly increase, and form a new branch of mineral industry. We are glad to see that the commission, appointed to examine the proposition of M. Demesmay, relative to the reduction of the tax upon salt, assembled in Paris on the 20th inst. They received a communication from the Minister of Finances, enclosing two reports from the Directors General of the Customs and Indirect Taxes, setting forth that the result of the loss to the treasury, by the adoption of the conclusions of the report of the commission, would be from 1,120,000*l.* to 1,200,000*l.*; there was also one from M. Talbot to the General Council of Manufactures, against the second article of the project of law, imposing a tax of 10 fr., or 8s. 4d., on every cwt. of salt employed by commerce or national industry. It is stated, on good authority, that the Council of State, after numerous refusals, but on being pressed very hard by the Minister of Finance, has at last given in its adhesion to the project of an ordinance, conformably to the twelfth article of the law of the 17th June, 1840, allowing the delivery of mixed salt to the agricultural interest, at a tax of 4s. 2d. per cwt. It is to be mixed, or adulterated, with bran and the meal of oil cakes, so as to render it not suitable for culinary and other purposes. This slight concession on the part of Government—reducing by one-half its monopolising tax in favour of agricultural improvements—has given a general satisfaction to the landed proprietors, and the farmers in particular, as salt is one of the finest manures for ameliorating and enriching the soil, too frequently of a very inferior quality in many departments. This is looked upon as a first step to the reduction of this oppressive impost generally, as in France the spirit of free trade, or low duties, has been instilled into all classes by the struggle which has been so violent in Great Britain for many years, and now likely to be successful. This heavy tax on salt is the cause of an immense quantity being annually smuggled into France from this country—chiefly through Belgium—notwithstanding all the vigilance of the officers of Douanes—customs and indirect taxes—causing a considerable loss to the revenue, which, was it to be obtained at a moderate price, would be but trifling inducement to smuggling. We have felt the benefits in this country of the taking off the tax on salt in advancing our commercial intercourse with India, China, and many parts of the globe, but particularly in our curing of fish and meat for exportation to our distant colonies; and now the white salt trade is one of the most extensive resources to the mine proprietors and manufacturers of this important article in Cheshire, Worcestershire, and other counties, and is rapidly increasing as the demand for exportation is daily becoming greater; and, when its import duty into India is either taken off or reduced to a moderate *ad valorem* entry, which is expected very shortly, the consumption will become six times more extensive, if not more. The above only shows how impolitic it is for any Government to monopolise so necessary an article by vexatious duties, as not only being detrimental to the commercial and agricultural prosperity of a country, but more particularly the salubrity of its population—*nous verrons*.

PRICE OF IRON IN FRANCE.—It appears that there is a tendency to a slight reduction in the price of iron. One of the high furnaces of the Upper Marne has offered flattened iron (blasted by coal), at the rate of 15*l.* 10s. per ton, delivered at St. Dizier. Cast metal still retains its price at 8*l.*—600,000 lbs. were sold last week in two lots, taken at the furnaces for a foundry, at the rate of 9*l.* to 12*l.*

PROJECTED COMMUNICATION ACROSS THE ISTHMUS OF PANAMA.—We have, in several former Numbers, given an account of the projected ship canal across the isthmus of Tehuantepec, surveyed by Signor Gaetano Moro, and conceded to Don José de Garay, by the Mexican Government. We now have the pleasure of giving to our readers a short extract from the report of M. Garella, one of the distinguished members of the *Ponts et Chaussées* in Paris, who had been deputed to study the important question of the practicability of cutting through the isthmus of Panama. This clever engineer has made a most minute survey of the tract of land between the two oceans, and made his estimates of the expenses; and in his opinion, the establishing of a railway, or a good Macadamised road, offers but very few difficulties, and that the cutting a ship canal is perfectly practicable. The slip of land which joins North and South America measures at least 1,430 miles (2,300 kilometres) in length. This immense tract of land presents various heights. At Panama itself, between that town and Chagres, there are only 40½ miles,—from the mouth of the Caimeto, in the vicinity of Panama to the mouth of the Rio Chagres, on the Atlantic, the distance is only 36 miles—and a little more to the east, towards the Bay of San Blas, only 31½ miles. This approach of these two great oceans is truly remarkable. After having carefully taken his levels, and well surveyed the isthmus as to its facilities and difficulties, he was convinced that it would be practicable to cut a navigable canal for vessels of 1200 tons. This canal to the Pacific ocean must be cut through the valley of the Caimeto, so as to run into the sea at the anchorage of Vaca de Monte, situated about 12 miles to the west of Panama, and towards the Atlantic ocean, by the valley of Rio Chagres, to meet on the ocean, not at the harbour of Chagres, which is inaccessible to large vessels, but at the bay of Limon, five miles distant,—thus would be insured on both sides a free and ready communication of the canal with the sea. The length of the canal would be in all 47½ miles—of which 34 are between the Pacific ocean and the Chagres, 7½ between Rio Chagres and the bay of Limon, and 5½ in the bed of the Chagres. The dimensions to be as follows—depth, 23½ feet; breadth at water level, 149½ feet; breadth at bottom, 65½ feet. The canals for navigating boats and barges in France, are at most from 3½ to 6½ feet (2 metres) deep, from 15 to 18 metres (59½ feet) broad at water level, and at the most 39½ feet at the bottom. The largest of the existing canals is the Caledonian, which is a ship canal, and is 20 feet deep, 122 in breadth at the water level, and 53 at the bottom. M. Garella's project is distinguished by a very bold feature. To carry an ordinary canal over an elevation of 460 feet, would cause no surprise; but this is no longer the case, when it is the question of a ship canal,—and finding that the elevation would be so great to overcome, and that at a most enormous expense, what with locks, forming the summit level, and the country offering no means of giving a sufficient quantity of water, to correspond with the draught of the canal, he conceived the gigantic idea of making (what is generally done in ordinary canals) a subterranean passage. All those who have hitherto written on the canal of the isthmus of Panama, have been dismayed by such a project—perhaps through not having deeply examined it. On an ordinary canal, a tunnel need not be more than 8 to 10 metres (33 feet) high, between the bottom of the canal and the summit of the arch, with a breadth nearly similar. On a ship canal, when the vessels would necessarily keep in their lower masts, a height of about 129 ft. would be required (nearly the height of the column of Napoleon, Place Vendôme, Paris), and a breadth of 69 ft. The idea of such an undertaking could only be contemplated by a masterly mind. This subterranean passage will be cut through a very hard porphyry—it must be of the length of 5900 yards, and will be approached by trenches of from 45 to 50 metres (165 feet) deep. It would permit the establishing of division at 328 feet under the culminating point—so that the elevation, to be surmounted by locks, would now be only 157 feet above the level of the low water mark. On the other side, on account of the difference of the tides, it would be 177 feet, and the tunnel alone would cost 1,433,800*l.* The expense of the canal with the tunnel would be, according to the calculations of M. Garella, 3,000,000*l.*, and with the interior walling of the passage, it would be 3,580,000*l.* The profits of the enterprise, after all the expenses deducted, would yield the sum of 5 per cent. on the capital employed. M. Garella, in proposing this gigantic tunnel, does not absolutely recommend it, and has carefully examined what could be done, if it were thrown aside. In this case, he is of opinion to dig a trench 275 ft. deep, and the bottom of which would be 49½ feet above the bottom of that of the subterranean passage, which would call for five locks more on each side, carrying the expenses to 5,960,000*l.* If it were reduced to canal, capable only of receiving vessels of 600 tons burden, the expense would still be 3,600,000*l.* A railway from Chagres to Panama would require 1,320,000*l.* A Macadamised road would be much less. As we have before stated, the isthmus of Tehuantepec has been studied, in a very careful manner, by Signor Moro, an experienced engineer, on behalf of a Mexican Company,—and that of Nicaragua, in Central America, by Mr. Bailey, an officer of the British navy, who has conscientiously fulfilled his task in this laborious survey. The French Government takes a very great interest in the accomplishment of this vast undertaking, and no doubt will render every assistance for carrying it out. We have seen the various plans of the three projects, and there will certainly be great difficulties to be overcome; but what will not science and the enterprise of man accomplish, if he has sufficient means at his disposal?

THE MANUFACTURE OF IRON IN FRANCE.

In former Numbers of the *Mining Journal* we have alluded to the deficiency that generally exists throughout the entire of France for wood and fuel of every description, either for use in the manufacture of iron, building, or other purposes; but, particularly, in Algeria. M. L. C. Michel has published some rather interesting statistics on this subject, in the *Annales Forestières*. It appears, that the importation of foreign wood into France, in 1843, was of the value of nearly 2,000,000*l.*; whilst, in 1844, it did not exceed 1,866,429*l.*, a decrease which may partly be accounted for by the increasing importation of coal of late years from England and Belgium. In Algeria, for some time, there has been an increased demand for wood. From the official returns, made by the Customs, it appears that, in 1841, wood, for fuel, amounted to 21,626*l.*; ditto, for building, 62,818*l.*; the grand total, in 1842, was 199,922*l.*; in 1843, it was 283,461*l.* In 1842, of the above quantity of fire wood and for building, imported into Algeria from France, was 27,549*l.* 12s.; from foreign countries, 172,372*l.* 8s. In 1843, the quantity, imported from France, was only 2,954*l.* 3s. 6d.; whilst from abroad it was the large sum of 280,506*l.* 16s. 6d. It will be seen from the above that the consumption of wood from 1841 has increased by 120,000*l.* annually, and that principally from foreign ports, although the importation may have decreased in a small proportion for France, it has materially augmented for Algeria. There has not yet been made an official return of the importations in 1844 and 1845; but, as the price of wood of every description has very much risen in the markets, the amount in 1844 cannot be estimated at less than 2,650,000*l.*, which is more than one-half of the entire value of the annual growth of wood in France, which is estimated, on an average, at 5,200,000*l.* per year. The French Government, seeing that her forests are yearly becoming more and more exhausted, is doing all it can to encourage the planting of young trees, which will henceforth become useful, either for fuel, building, or other purposes: in Algeria, the local authorities are also giving every support they can to cultivate that barren soil. The fabrication of iron and steel is making very great progress annually in France; but the serious drawback to metallurgic industry is the scarcity of coal and ligneous fuel.

The following statistical table of the consumption of mineral, or bituminous, combustible, every five years, from 1820 to 1840, and annually since, up to 1843, being the last returns:—

Yrs.	Indigenous production.	Importation.	Exportation.	Consumption.
1820	10,936,578	2,809,197	564,555	13,481,220
1825	14,913,813	5,086,187	56,149	19,949,853
1830	18,626,553	6,372,912	60,117	24,959,449
1835	25,064,166	7,931,514	212,998	32,782,182
1840	30,033,820	12,906,680	373,305	42,567,115
1841	34,101,399	16,191,354	494,609	49,796,521
1842	35,920,832	16,691,837	578,524	52,034,136
1843	36,925,896	16,626,873	617,188	52,989,593

It will be seen by the above, that, from 1820 to 1840, the consumption has risen from nearly 14,000,000 to 42,000,000 cwt., and that the increase from 1840 to 1843 is more than 10,000,000, which proves that the native produce of coal has been far from progressing in the same ratio as foreign importations, notwithstanding that the substitution of coal for wood in the manufacture of iron and cast metal has been of late years very considerable, and is progressing and increasing daily; it is still a fact, that wood enters far more than two-thirds in the category of fuel in the metallurgic furnaces, as will be seen by the following table:—

Years.	Charcoal.	Coke and coal.	Wood.
1839	1,795,639	5,246,094	291,199
1840	5,833,694	6,908,620	287,592
1841	6,976,594	6,508,439	232,106
1842	6,081,870	6,066,647	207,796
1843	6,387,034	7,357,973	724,464

The total value of which was—£11,899,628.

It results from this, that the metallurgic furnaces consumed in 1843 a quantity of wood and coal, of a value of nearly 1,850,000*l.* One thing is to be said, that there is not that encouragement that ought to be extended to the proprietors of forests; and, since the rapid progress of railways and steam navigation in France, the rich capitalists are directing their attention to the purchase and working of the coal mines, as they offer very great advantages, compared with the propagation of young trees, which will be years before they can come to maturity, and the demand for fuel being so imperatively urgent, to meet the emergency that now is daily increasing for fuel from one end of France to the other.

MINES AND METALLURGY IN GERMANY.

On the Employment of Gas in Furnaces.—M. Goldenberg, director of the fine furnaces of Zornhoff, has published the following notice, on the process of affrage by gas:—"The employment of gas in the high-furnaces for refining of iron has been decided, in a perfectly satisfactory manner, at the forges of Treverai, by MM. d'Angelaire and De Lisa. It is only, however, practicable in certain cases, and it is, consequently, necessary that they must be near a high furnace of a sufficient propelling power (either steam or hydraulic), to carry out the twisting and drawing of the iron, and it frequently happens that several circumstances oppose this combination of two establishments. Besides which, the success of this method of puddling depends greatly on the good blasting of the high furnace, on the nature of the ore that is to be worked, and the fuel employed. All these difficulties have given rise to several manufacturers trying to produce gas in private furnaces, by employing combustible matter, of an inferior quality, such as turf or peat. It appears, that at the furnace of Magdesprung, in the Hartz Mountains, they have obtained the most satisfactory results from this new method; as, independently of the iron, it yielded forth puddled steel by gas. According to my opinion, this latter fact has not yet presented itself in any part, and that the steel thus produced had the appearance of being of an excellent quality. The director of the furnace, M. Zinck, has positively assured me, that he had not the slightest doubt of the complete success of this process, and that they were going to adopt it generally at Magdesprung. It is expected that, by this method, they will obtain a saving of 50 per cent. on the fuel, so that 2*l.* in value of wood, to be converted into gas, will give a result which has never been previously obtained, that by the means of charcoal is double the expense. The director has, in every instance, not been willing to comply with my wish, to see his furnace, as, up to the present moment, they make a secret of this new process. The successful result of this method will be of the greatest importance to the whole of northern Germany, which possesses most extensive beds of turf and lignite. In their solid state, these combustibles have been of but very little use, up to the present, in the manufacture of metal; but, being reduced into gas, they become a great resource to those districts. The same process would not be less beneficial to France, which possesses some very rich peat bogs, and scarcely turned to use; and as the wood, for the production of gas, does not require to be carbonised, will become also a more economical and advantageous fuel. It is expected that the gas, thus produced in private furnaces, will give better results than that in the high furnaces, always, more or less, mixed with carbonic acid, steam, or vapour, which disengages itself from the ore, the production of which is more irregular than that of a private apparatus. The advantageous results thus obtained, by the employment of gas in the refining of iron, as far as regards the saving in fuel, as well as causing less loss in the improvement of the quality of the material, renders it highly desirable that our forgemasters should apply themselves with energy to the study of this process, and its general introduction into our furnaces." This improvement has been latterly adopted throughout Germany and Sweden, coal or bituminous fuel, being rather scarce, and there is very little doubt, that the ironmasters of France will also follow the same process, as the great drawback they experience, is the scarcity and dearth of coal, charcoal, and wood.

CARN BREA MINES.—The prospects of this mine have of late considerably improved, and a consequent rise in the value of shares taken place, indeed, there is no disposition evinced to sell at present prices. We observed, in a late number, that a new lode had been discovered, worth 60*l.* per fathom; and we have since had an opportunity of inspecting the specimens at the office of the company, which are composed of native and ruby copper, and the lode having been proved 3 feet big, and varying in value from 50*l.* to 200*l.* per fathom. This lode is situated between Teagues lode and the Druid lode, and is whole to surface; the discovery referred to, is at the 18 fathom level, and considerably enhances the value of the set. At the Druid lode, in the extreme eastern end, at 38 fathom level, the lode is reported as being worth 40*l.* per fathom, and the mine working to a fair profit, which it is expected will be considerably increased, so as to equal any expectations heretofore entertained, or which have been realised. The extreme depth of the mine, we believe, is about 130 fathoms.

Original Correspondence.

MINERAL RESOURCES OF IRELAND.—No. II.

SIR.—The counties of Cork and Kerry are, in their geological formations, chiefly composed of the old sandstone series, the upper clay slate, and the carboniferous, or coal, formation. Along the southern coasts, from Youghal to Dunmanus Bay, vast strata of clay-slate, in which are many excellent veins, or beds, of roof slate, to be noticed hereafter; grey wacke, carbonated, chloritic, and talcose rocks, slaty, compact, and mixed, are seen generally in alternate order. Old red sandstone on the east and north, and limestone on the south, form the basin of the river Lee, on which "the beautiful city" is indeed beautifully situated. The upper clay slate, in which occur thick beds, or strata, of the above rocks, and small isolated beds of limestone, extends from the neighbourhood of the city of Cork west, to the extreme west of the county of Kerry, and on the north of these counties, are found immense tracts of the coal formation, in which are rich beds of culm and anthracite coal, containing from 81 to 95 per cent. of carbon. The two first orders of rocks are numerous chequered and interlaced with mineral veins and ore lodes. The ores are chiefly copper and lead, of the sulphuretted classes, but of the highest produce in metal. The lead ore produces much silver; but in some places, in branch veins of lodes, as at Ringabella, near Cork, there is a portion of iron and arsenical pyrites mixed with the ore that deteriorates its value, in rendering it more difficult and expensive in smelting and separation. The copper ore veins and lodes chiefly contain yellow, purple, and grey sulphurets of copper, passing in many places into each other. The purple and yellow seem the most constant, and form, though generally distinct in the lodes, the body of ore. The branch veins or feeders of the lodes, are also different in qualities from the ores of the main veins, and often produce good bunches of ore. Quartz as usual, but mixed with chlorite or peach, is the veinstone, or matrix, of the ores. Chlorite forms a very great portion of the veins at surface, and even to some depth. Talc also prevails, but where the latter occurs, the ore is found rich and in quantity.

The lodes, where the under or overlying walls assume a harder texture than usual, are mixed with compact talc and siliceous veins, which, it would appear, change the features of the lodes by having the lode stones impregnated with very fine grained ore, discoverable only by the glass or assay, or by its high specific gravity. In general, however, the metallic portions of the lodes are composed of rich stones of ore, continuous and wide. Before I proceed to describe particular localities of the mining districts of these counties, I request to explain certain geological terms used at present in classification and order, by some of our most eminent scientific writers on mineral subjects; I do this particularly, as referring to the formations of the counties now describing. In Griffith's celebrated Geological Map of Ireland, the districts now noticed are marked as formed of old red sandstone; and, in Dr. Kane's valuable work, *On the Industrial Resources of Ireland*, the slaty rocks of these divisions are called carboniferous. Now, no old red sandstone of any importance is to be seen, or is discoverable, to the west of Cork, at or near surface in those counties; and I should prefer calling the slate carbonated slate rock, rather than carboniferous, in order to distinguish it from the shales or carboniferous slates of the coal formation.

It is true, where there is carbonic acid, as discovered in these slates, by testing with muriatic or other acids, which expel the carbonic acid by effervescence, there must be carbon; but carboniferous, to general readers, gives an idea of coal bearing, of which the slate of these parts, now alluded to, has no reference whatever—it being a sub-rock in geological position to the coal formation. Again, this slate, and its accompanying strata, are called Silurian—a term, certainly misapplied—being applicable, properly speaking, to the rocks of Wales only; although I am aware, in Mr. Murchison's valuable work, other districts are included under that title or denomination. To prevent confusion, therefore, as I shall have to make frequent reference to this rock, I shall call it, whether compact or slaty, carbonated, and thus distinguish it from the shales or carboniferous slates, &c., of the coal formation, leaving the higher geologists to retain their own, perhaps, more scientific, but certainly not more intelligible, nomenclature. Ringabella "Silver Lead" Mine, distant about 10 miles of Cork, is very favourably situated for working and shipment. It forms an extensive peninsula, and is about 90 fathoms in height over high water mark. An excellent adit is cut into the mine from the northern side of the peninsula. The rock is carbonated slate, in which veins of ore are found tolerably regular, of cubical and granular argentiferous lead ore, mixed, as already mentioned, in different parts of the mine, with crystallised iron and arsenical pyrites. The veins, on my examination, did not assume the character of regular lodes. They rather seem to be (what some of the professors of the present day call) contemporaneous veins. They are, however, tolerably constant in ore-bearing, and will, I consider, repay the company with interest for their outlay.

The indications along this line of district are all favourable for lead, and would, I am confident, be found well worth examination, if attended with judicious trials. The lead mines of other parts of Ireland, which shall be noticed in order, are, generally speaking, peculiarly rich in silver, as the Clare Mines, formerly in the possession of John Taylor, Esq., but now working by the Messrs. Crookfords, and the Shallee Mines, near the "Silver mines" in Tipperary. It is remarkable, however, that where the ore is rich in silver, its quantity is diminished; and where the silver is found sparingly, which often occurs in the same lode, the lead swells, as it were, into great bunches, and is more productive, at least in quantity, if not in quality, and such, I consider, will Shallee Mine be found in working. I cannot pass remarking on the disorganized and incongruous manner of opening, &c., observed in the past workings of the mines of this neighbourhood, particularly as regards the monstrous and expensive trials made on the "Silvermines" by former companies, without any return. Surely had experienced and close-observing mining surveyors or captains of mines (scientific, of course, as all such are supposed to be), taken due patience—that is sufficient time to make their examinations—(a matter, by-the-by, carelessly enough attended to, but in which a reform is much to be desired), then the workings at "Silvermines"—at Shallee, a certainly most promising mine—and at other mines unwisely left idle, would, doubtless, be now making returns. But I am digressing; and as this letter has extended sufficiently for this number, I must refer to my next, when I purpose treating on particular localities in Cork and Kerry, where copper lodes of high promise have been discovered, and from which, ores yielding a considerable produce, beyond the aggregate of those generally found, have been extracted. It is to the productiveness of these lodes in quality, where proved, that I would more especially direct attention, as evidence of the apathy, or disregard of the mineral treasures which these two counties alone present, sufficient in themselves to hold out inducement to the English capitalist.—*ST. PIERRE FOLEY: London, March 5.*

WALL'S IMPROVEMENTS IN METALLURGY.

SIR.—The article, signed "An Iron Smelter," in your last week's Number, on "Wall's Improvements in Metallurgy," although not glaringly uncourteous, seems to betray a wish to rekindle the ill-smothered embers of some former pique, or it may be intended as a test of the sagacity of Mr. Wall, by tempting him to an explanation, which would preclude the necessity of any application for licenses. Although personally interested in whatever tends to improve the condition of our iron trade, yet perfectly indifferent as to the quarter whence the amelioration may arise, I must say, that after a careful perusal of the treatise, it does not merit the strictures passed upon it by your correspondent. It merely professes to give a detail of experiments in proof of the claims of the process, as patented by Mr. Wall. Facts are simply stated, with their corresponding dates. There is no straining at effect, no catering for importance, nor any appearance of a wish to exaggerate. The testimonies of several individuals are adduced, "of course, in favour of the electrical iron;" but, on a review of the character of these witnesses, together with the opportunities which they had of forming a correct opinion on the subject, I cannot but think that the insinuation of "An Iron Smelter" falls pointlessly to the ground. I think also, that, on a more careful search, he will discover some traces illustrative of the rationale of electrical agency, when set in operation on ferruginous compounds. As to the new battery, constructed by Mr. Wall, respecting which your correspondent complains, that the Treatise is not sufficiently explicit, I have just seen the model, which is being lithographed, preparatory to its being prefixed to a second edition. Nothing can be more simple in principle, or less complex in construction, and once arranged, according to the directions to be given with the drawing, there will be no need of "the presence of a scientific man," nor ground of apprehension "in leaving it in the hands of the usual attendants on an iron work, as only the most gross negligence, or determined malice, can obstruct its 'elaboration,' or hinder it from producing effects, which, I think, will prove it to be something more than a 'beautiful philosophical toy,' or 'impracticable novelty.'"
—*AN IRONMASTER: Wokinghampton, March 5.*

IMPROVED CUPOLA FOR MELTING IRON.

SIR.—In a recent Number of your paper was given an account of an improvement in cupolas for melting iron, claimed by Messrs. Franklin, Townshend, and Co., of Albany, New York. Now, I think if there are any merits due for that improvement they ought to be given to this country, as we have had a cupola working on the same principle as the one described in your paper for nearly two years, and can bear testimony that there is a great saving in the use of it. The English public are generally suspicious of anything coming from brother Jonathan. Any person feeling desirous of inspecting the cupola at work may do so by applying to me—with the exception of its being worked with cold instead of hot-blast.
Ogley Foundry, Feb. 28.
EDWIN ROSE.

STATISTICS OF THE BLACK LEAD TRADE.

SIR.—You would confer a favour by entering, at your convenience, into the statistics of the black lead trade—giving from whence the supply is obtained, in what quantity, and what prices; and any information regarding the Borrowdale Mine, in Cumberland—what is the present annual supply and price obtained, and if any ores of foreign produce equal it in quality, or if any method has been discovered, which, if by mixing the pure black lead in fine powder with gummy matter, the mixture produced is equal to the pure native solid black lead in value—say, for artists' pencils? An early inquiry into the subject will oblige—*PLUMBAGO: Swansea, Feb. 26.*
[We have before had our attention directed to the desirability of collecting the information alluded to by our correspondent. Beyond the general particulars already given in our columns, we believe nothing is publicly known—the trade being confined to very few hands, and the system pursued by them entirely precluding others than those immediately interested from fairly obtaining the least knowledge of what transpires.—*PLUMBAGO,* or any other correspondent, would be conferring a great favour, by furnishing us with such information as they possess.]

GENERATION OF SULPHURETTED HYDROGEN GAS.

SIR.—Observing in the *Times*, of this day, the report of an inquest at Greenwich, and that the jury found that the men met their deaths "by suffocation, from the effects of sulphuretted hydrogen gas, which had escaped from one still to another still, I should feel much obliged by any of your correspondents informing me, by what process the sulphuretted hydrogen gas was generated in this case, the works being for the manufacture of sulphuric acid.—*A SUBSCRIBER: London, February 4.*

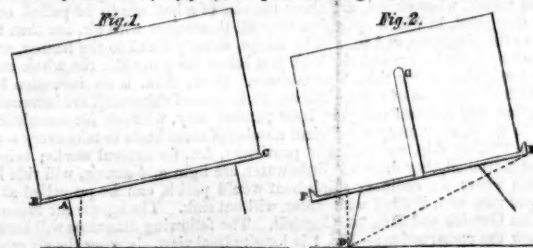
PILBROW'S ATMOSPHERIC RAILWAY.

SIR.—I noticed in your Journal of last week a note, containing some inquiries respecting "Pilbrow's Atmospheric Railway," and, in it, an allusion is made to the model exhibited at this establishment; the writer states that he was informed here, "that the model was so dangerous in its action, that we dared not exhibit it." I beg to assure you, that the information was given without the least authority, and is perfectly incorrect; the working of the model was not suspended on account of any apprehended danger; but for the purpose of furnishing it with a set of new pinions, or cog wheels, and that as soon as these are completed, it will again be set to work. I have felt it necessary to make this statement, as the note, which appeared last week, is calculated to severely injure the invention, upon erroneous grounds.
T. W. KEATES.
Adelaide Gallery, March 5.

GREENHOW'S GEOMETRICAL RAILWAY.

SIR.—In the *Mining Journal* of last week appeared a letter from Mr. Martin, setting forth his reasons for objecting to the suspension of railway carriages, as proposed by me. I must, therefore, again trespass on your patience, by troubling you with some remarks in reply, and to make the matter more clear, I will take the subjects in Mr. Martin's letter, and reply to them in the same order as they occur. In the first place, as to the thanks I gave him at the end of the evening, he has allowed a vivid imagination to give a bright colouring to a very slight incident; I did certainly thank him for the gentlemanly way in which he had put his questions, also for the considerate manner in which he withdrew from the contest, when he saw the commencement of the confusion he describes; but where the rest of the colouring comes from he knows best. Next, in reply to the *truism* he favours us with, about a body not overturning itself, "unless the vertical line from the centre of gravity falls without the base," I will only ask Mr. Martin to read what I have said on the subject, and make himself acquainted with the principles I laid down, and I think he will find that I have said nothing contrary to the above proposition; but I have made such arrangements, as to make it more difficult for an impetus given by an obstruction on the rail, or other cause, to throw the vertical line he talks of, without the rail, or base, on which the carriage rests. It is not to resist a steady and continual power; but an impulse acting at intervals, with more or less effect, according to the magnitude of the obstruction, and which, once resisted, ceases to operate. Had Mr. Martin made himself acquainted with the whole of the arrangements contemplated in the geometrical railway, he would have been satisfied that I had succeeded in making it more difficult to throw the centre of gravity beyond the perpendicular of the base.

In the present system, on any contingency occurring to raise up one side of the carriage, the proper relation between the wheel and the rail is at once destroyed, the axis of the lower, or supporting wheel, becomes the fulcrum across which the axle acts as a lever, the weight of the carriage, resting upon the opposite end, tending to press it down, and to resist any attempt to turn over, with a force proportioned to the length of the lever, and the amount of weight within the line perpendicular to the rail's centre. Now, the supporting spoke, or fulcrum, being originally perpendicular to the point on which it rests, and secured to the lever in such a manner, that as the one elevates, the other departs from the perpendicular in a precisely similar ratio, thus, being thrown beyond the perpendicular, it diminishes the power of resistance to the centre of gravity, because the fulcrum has itself a tendency to recede (see fig. 1); the point A being the fulcrum across which



the lever B, C, acts. On the elevation of the end C the fulcrum A departs from the perpendicular in a similar degree to the elevation, diminishing the power of resistance to the impulse imparted to the body: at the same time great part of the weight is pressing on the point B, considerably beyond the perpendicular of the point supporting the fulcrum, much reducing the effect of the counteracting leverage. By the arrangement in the *geometrical railway*, a very different effect is produced, from the perfect adaptation between the wheel and the rail. Under all circumstances they are rightly adjusted to each other, and the spoke of the wheel having an inclination of 22° degrees within the perpendicular of the rail on which it rests (see fig. 2), it follows that the axle and wheel form together one bent lever, acting with the rail as a fulcrum, the true length of which is an imaginary line drawn from D to E, which being considerably longer than that in fig. 1, from A to C, the like weight on the end of it will, consequently, have more power in keeping the lever down; and the fulcrum, on which it acts, being fixed, will not recede and diminish its power. At the same time, by the suspension of the carriage between the points G and E, the weight is not thrown at F without the line perpendicular to the fulcrum; whilst on a diversion of the centrifugal force giving an impulse to cause elevation at E, the weight thrown by the restraint on the pendulum at that point must be so much removed from G, and consequently, the centre of gravity lowered in a ratio equal to that removal of weight. I think what I have said will convince Mr. Martin, that if "the whole matter lies in a nutshell," he is not of sufficient calibre to crack the nut. He next talks of the centres of suspension having a centrifugal force of their own—what he means by this I must confess myself perfectly "innocent" of. Next, I must state, that, in using the word "erro," I did not include him in the category; but I think he will allow that I was justified in applying it, when I relate what took place. After the meeting broke up, one of the gentlemen came to enlighten me on the subject of centrifugal force: by way of illustration, he had a piece of wood fastened to a string, which he threw round with considerable velocity, saying triumphantly, "that is centrifugal force?" I merely replied—"No, it is not; but if you let go

your hold on the string, and allow it to fly in the face of your friend, you will have a practical exposition of the principle." I need not say that I heard no more of him. Next, Mr. Martin will remember, that one gentleman during the discussion stated, that a cannon was enabled to resist the expansion necessary to eject the ball, because it was an arch; evidently ignorant of the fact, that the power of resistance in an arch is due to compression, not expansion. I fear, if this gentleman can throw no more light on other subjects, those who attempt to steer in his course, will find themselves signally disappointed in their expectations. I trust I have said sufficient to satisfy Mr. Martin on all the points at issue, so will conclude, by subscribing myself, your obedient servant, C. H. GREENHOW.
Cecil-street, Strand, March 5.

SOUTH-EASTERN RAILWAY.

TO THE EDITOR OF THE RAILWAY RECORD.

SIR.—Having examined the Bill for the branch railway from Tonbridge-wells to St. Leonard-on-Sea, in length about 25 miles, I take advantage of your columns to caution the shareholders against the intended sacrifice of their capital. The South-Eastern Company take powers in the Bill to raise £50,000, and this does not include the amount provided for a tunnel to connect the line with a station at Hastings; the total cost will, therefore, be at least 1,000,000. Now, I will undertake to prove that double the length of line made direct to the Hastings terminus will not cost so much if made by the Direct London and Hastings Company. Under such circumstances, shareholders must be exceedingly good-natured who will part with their money for shares in the South-Eastern Company, when by investing in another Company for the same purpose, they can not only get the same value at half the cost, but avoid a division of profits with holders of the old stock of 5,000,000, or 6,000,000, for the cross-country lines. I have no doubt this is a fair example of the rest of the Bills of the South-Eastern Company, as they are pledged to waste and extravagance in every department. There is no part of England where heavy works are executed at less cost than in the Rape of Hastings, or where it is more imprudent to employ engineers from the North; and as a proof of this fact, it is not long since, in a case before a Committee of the House of Lords, an engineer of high repute (Sir John Macneil) estimated some road works near Hastings at 11,000, which I subsequently superintended, as one of the trustees, and they were executed by local contractors for about 2,000. Without intending the slightest personal disrespect to railway engineers from the north, it is perfectly absurd to employ them in the south on such common-sense matters as railway works; and the impropriety of employing any but local contractors is amply proved by the manner in which the works connected with the Brighton Railway Company have been conducted to the present time.—*J. TROUP: Hastings, Feb. 25.*

DIRECT LONDON AND EXETER RAILWAY.

In our report of the meeting of the shareholders in this company, in last week's Journal, and our remarks thereon, we alluded to an explanatory letter, addressed to Sir Bruce Chichester, a copy of which we received from Mr. Colombine, but too late for notice; that document is necessarily very lengthy, and instead of inserting the same entire, we think it better for the writer's cause, and more satisfactory to our readers, to give it in a condensed shape, retaining all the points of importance. Mr. Colombine commences by stating that the resolutions passed at the meeting of the 23d ult., leave the questions between himself and the committee wholly untouched, notwithstanding the recrimination which there took place; he then goes back to the meeting of the 15th of December last, at which the accounts there produced, showed a balance of only 492, which, in answer to a question from a proprietor, Sir Bruce Chichester distinctly stated was correct; in these accounts 812, 10s.—part of the preliminary expenses, charged as paid to Mr. Colombine—that gentleman declares he never received; and he states that the day after that meeting, Sir Bruce acknowledged to him that he had while present, 10,000, in Exchequer Bills in his pocket. The committee had explicit notice of the charges brought against them by Mr. Colombine, which he reduces under the four following heads:—1. The non-receipt by him of 812, 10s., charged by him in the accounts. 2. The unexplained and suppressed fact of 1506, 11s. 3d., being paid out of the 4000, alleged to be for stock-jobbing purposes. 3. The irregularity (to use the most courtly phrase) of the Parliamentary deeds; and 4. The non-registration of two of the most active of the committee. The letter proceeds to substantiate these charges; and challenges a calm, careful and deliberate, investigation as to facts. With respect to the charge made by Dr. Phillimore, as to ante-dating one or two orders for advertisements; the writer thus explains:—Since January the collector of two railway publications called upon him with accounts for 28, and 19, 19s., and stated that he had applied to the committee, and if he would sign the order they would pay it, but he declares that he positively declined to do so; but for the sake of doing justice to the publishers, he gave the following certificate at the foot of the accounts—"I certify that an order was given by me previous to the insertion of the above advertisement," and which he signed and dated correctly—and as to allowances made for advertisements, he declares that he never received, or was promised, a single shilling from the 2656, 2s. 7d., stated to have been paid for advertising, nor had he the slightest interest in any of the engineering expenses. Having thus disposed of these charges, he puts some queries to Sir Bruce, as to the honour of the committee in their various proceedings, whether it was consistent with honour to approve of deeds, back dated, in order to deceive the shareholders? to hold a cheque for another for 812, 10s., approved of at a meeting of subscribers, and for which a resolution had passed the board, though never entered on the minutes? to take the produce of a man's labour for months from his hands, evade the payment of the sum held for him, treat him with undeserved suspicion, till at length he must have been obsequious and patient indeed, to have continued any longer associated with such a committee? and whether it was consistent with honour to produce false accounts to the shareholders, and to suppress the fact of a payment and loss incurred by the committee's own act, while a former finance committee is gravely charged with having purchased 1075 share, for which Sir Bruce afterwards consented to pay, because, as he stated at the meeting, Sir Henry Pynn came to him with "tears in his eyes," and because he was "beset for several days?" A statement having issued that Mr. Colombine was not the projector of the line, he observes that projector and promoter are synonymous; that the party who exerts himself for the success of the company has the best, and only substantial claim; and that he always wished others aiding in the slightest degree to be rewarded according to their merits and deserts. Mr. Colombine then, having gone through the second account produced by the committee at the meeting of the 23d of February, subjoins a declaration, made before Mr. Hardwick, the magistrate at Marlborough-street, in which he states, that on the 16th of December last, Sir Bruce Chichester positively stated that the bankers' account at Messrs. Curries had been closed, and that he had caused all the money to be withdrawn sometime previous to the meeting, for fear of creditors attaching the funds, and that at the meeting on the previous day he actually had in his pocket 10,000, worth of Exchequer Bills—that two days afterwards he applied to him on the subject of the 812, and he then stated that he thought he could not pay him until a sum expected was received from Scotland, thus, leading him to expect a mere temporary delay, and not that any objection existed to carry out the arrangement made, of paying him 812, 10s. in money, and 1000 shares, neither of which, or any part thereof, has he ever received up to the time of making the declaration. As to the charges brought against him at the meeting, of his being connected with Lord Huntingtower, and being solicitor to the Air Machine Company, Mr. Colombine declares he never saw or had any transactions with his lordship; and as to the latter charge, the company was never formed, nor did the public subscribe a single shilling to the speculation; he advanced money to the parties to secure the patents, for which he has never been repaid—and some of the experiments are still progressing. We have, we believe, now taken every point in Mr. Colombine's letter, to which it is necessary to advert, to enable that gentleman to set himself right with the public, which we think has been done satisfactorily, and in this condensed form, will draw more attention than in the very lengthy state to which he has carried the letter itself.

MACHINERY FOR EGYPT.—M. Cavé, who contracted for the building of the *Chaptal* iron steamer, with all her machinery complete, which will leave Paris about the 15th of this month, is now busily engaged at Rouen, in shipping off to Alexandria, in Egypt, the different materials to complete the large dredging machine, for which he has contracted with the *Bahin*, *Mohem-Ali*, for the purpose of dredging the Nile, so as to render it perfectly navigable. This is only a preliminary step towards the cutting of the navigable ship canal across the Isthmus of Suez, to join the Red Sea with the Mediterranean—one of the grand projects of the Emperor Napoleon.

GREENHOW'S GEOMETRICAL RAILWAY.

[The following paper was read at the Philosophical Society, Newcastle, on Tuesday last, March 3, by Mr. T. M. GREENHOW.]

No subject absorbs so large a share of public attention as railways, nor is there any which so largely affects the public interest, safety, and comfort. The facilities which they offer for commercial and social inter-communication have converted the whole world into travellers; and have added greatly to the enjoyments and conveniences of human life; nor can the consequent enlargement of the field of thought, from the more extended intercourse of society, and the variety of new objects presented to the senses, be easily over-estimated. But, surprising as has been the growth of the railway system, especially in this country—and marvellous as is the rapidity with which we are enabled to transport ourselves to the most distant parts of the kingdom—the numerous accidents which continually give rise to inconvenient delays, to serious personal injury, or to the destruction of life, cannot fail to convince us that something is yet required to bring it to that state of perfection, of which we can scarcely doubt it to be capable. Every reasonable attempt, therefore, to introduce greater precision into the mechanical or other arrangements, surely deserves the careful and candid consideration of engineers and others concerned in the management of railways, not less than the serious attention and encouragement of the public generally, for whose welfare such attempt has been made. It is from these considerations that I am induced to claim the attention of this society to what has been denominated the "geometrical railway"—a term which I believe to be strictly appropriate, since the arrangements throughout are based upon geometrical calculations, and appear to me to involve mechanical principles of great importance in works of such vast magnitude and grandeur.

That a determinate figure is most appropriate for everything in nature and art, is a position which may be proved directly and indirectly, by reasoning on the immediate effects of specific forms in their action and reaction on each other, and by the analogy of existing mechanical operations of the most perfect and successful character. In mechanics this position is as essential as the atomic theory is to modern chemistry; and definite forms are not less necessary for perfect mechanical arrangements, than definite proportions are to perfect chemical combinations. But let us bring forward a few illustrations. Why are the planets round? and why do they maintain perfect order and regularity in their movements, and relative distances from each other? Is it not by a strict observance of the laws which nature has imposed upon matter? and because a round figure is necessary for a perfect balance of the several forces by which they are acted upon? Alter their figure, and you immediately destroy this beautiful balance of forces; because the prominent points of an angular body, or the unequal proximity of an oblong, would alter the uniform operation of that attraction and repulsion on which their regular movements and unvarying distances are dependent. This observation may be applied with equal truth to the more perfect works of man. In the construction of the steam-engine, for example, why is the cylinder round, but because the relations between it and the piston are manifestly more certainly and accurately maintained than could have happened with any other figure? But the most apposite instance, perhaps, is afforded by the wheel. A wheel is a succession of levers, acting between the axis and the circumference, which, in its revolution, succeed each other in regular order, and the perfection of its action depends upon the uniform length of these levers—depart in the slightest degree from a perfect round, and how obviously ill does the whole perform its duty, halting and hitching as it goes along, and continually threatening to break down with, or overturn, the weight which it supports! Such were the first attempts at wheel making. The axis was but an imperfect round, the tyre not a precise circle, but varying at different points in distance from the axis. The roads, too, on which such wheels revolved were rough and uneven, and adapted very rudely to the action of the wheels. But wheels were gradually brought to a greater degree of mechanical perfection; and for the roads, Mr. McAdam at length did something, and railways have done much more: yet, still, the frequent and often fatal accidents which occur upon these, prove that perfect in this respect has, by no means, been attained; and when we revert to original principles, we are enabled to detect many glaring defects. If we would remedy these defects, we must imitate the more perfect operations of nature in the figure and balance of forces dependent thereon, which secure the safe and regular movements of the planetary system; and the degree of precision which has been introduced by man into the more perfect of his mechanical arrangements, as in the steam engine, the time piece, and the various modifications of the pulley.

Holding these fundamental principles in view, a definite form has been given, in the geometrical railway to the rails greater precision to the adaptation of the wheel, and arrangements adopted to secure such a balance of the forces of attraction and repulsion, as to prevent the engine and carriages from being forced off the line, under many incidental circumstances, which are so frequently the causes of the most destructive casualties on railways. But though I may have succeeded in proving that a definite form is essential to all the parts of a well-constructed machine, which cannot be departed from without detracting, more or less, from the perfect performance of its operations, it remains to be inquired into, what is the appropriate form for any particular piece of mechanism? A railway, for instance, which, with its engines, carriages, and rails, can only be looked upon as one great and connected machine. To answer this inquiry properly, we must consider what are the movements expected to take place between the different parts, either by design, or by accidental circumstances which cannot be avoided,—and what are the altered relations occasioned by these movements? To enable us to answer these questions correctly, it may be laid down as an axiom, that a round is the only form which admits of a variety of motions between different objects, when made to move upon each other;—for example, a solid square may move along a groove of the same shape, horizontally, and so of an oval, or octagon; but alter their relative positions, and the mechanical adaptation ceases. But apply this principle to railways. It may be very true that the more general movement of the movable on the fixed parts of these great machines, is horizontal, nevertheless both by design and accident other movements not unfrequently require to be performed, and for these the shape of the rail, and the adaptation of the carriage-wheels, are equally unfitted. This has been long felt by engineers, and great and frequent changes have, in consequence, been made in the shape of the rail and the tyre of the wheel; still the object has been very imperfectly attained, of so adapting the one to the other as to admit of sharp curves or accidental impediments being encountered, or rapid speed attained, with safety, or the avoidance of that constant oscillation from rail to rail which is so annoying to the traveller, while it is constantly deranging, in an increasing degree, the parallelism, and loosening the connections of the rails. We must conclude then, that the definite form appropriate to the rails, has not yet been attained; and since the necessary movements which take place between them and the carriage-wheels are accidentally or designedly various, frequently altering the relations between the one and the other, the true definite figure of the rails must of necessity be round or cylindrical. Arriving at this conclusion, we are naturally led onward to the other mechanical arrangements which have been adopted in the geometrical railway,—the proper adaptation of the tyre, the obliquity of the spokes, and the peculiar method of suspending the engine and carriages.—[To be continued.]

RIVETING BOILERS BY STEAM.—We last week briefly referred to an invention, recently completed, for the purpose of riveting boilers by steam. The machine, which has been placed on the works of Messrs. Garforth, of Duckinfield, is about five feet long by four broad, and constructed upon the most simple plan: there are no wheels or cranks, the whole appearing to be merely a round piece of iron with a small shaft projecting from the centre, at the end of which is placed the die that forms the head of the rivet on the outside of the boiler. There is a strong iron post a few inches from the shaft, in the front of which, and opposite to the end of the shaft, is the die which clenches the rivet in the interior of the boiler: between this post and the shaft, the iron plates are placed, suspended by blocks fixed at the head of a strong wooden frame of considerable height, by which they are hoisted and lowered by one man at pleasure. The principle upon which the machine is worked is similar to that of the piston used in a common engine, the steam being brought from the boilers to the machine by means of three-inch pipes laid under ground. The riveting may be said to be accomplished more by a push than a blow, and to affect this a boy stands at the side of the machine, and by means of a lever, opens and shuts the valve which gives a propelling power to the shaft equal to 20 tons weight, and this too with comparatively little steam. Seven rivets per minute can be thus secured with ease; while the very disagreeable sound made by the present system of hammering (in some neighbourhoods a most intolerable nuisance) is entirely avoided, the noise caused by this machine not being heard beyond a few paces. Many scientific men have inspected the machine, and expressed their satisfaction with its power and construction.

CRAMPTON'S PATENT LOCOMOTIVE ENGINE.

At the Society of Arts, on Wednesday, Mr. Crampton made a further statement respecting large wheels, conceiving it necessary to do so, as the explanation given by him previously, was not sufficient, in his opinion, although correct—yet without all the circumstances were known, it might lead to the conclusion that engines, with small driving-wheels, took less power than large ones to take the same load a given distance. The question put to Mr. Crampton was to this effect—"How is it that you propose large wheels, when it has been found in practice that they will not answer, instancing the Great Western?" The answer being, that the engines, with 10 ft. wheels, on the Great Western Railway, had not sufficient power to drive them. Mr. Crampton, in explanation, gave the annexed list of locomotives, containing every essential particular, and showed most clearly to the meeting that the large 10 ft. wheels were abandoned for want of power, and the 7 ft. ones preferred—that is, the 10 ft. wheeled engines had 474 ft. of heating surface, while the 7 ft. wheels had 724 ft.—being 250 ft. more surface, as the latter engines took heavy loads at high speed (which could not be expected of the former). The company, in consequence, had designs made, and ordered several of the same power—viz., 7 ft. engines, with 700 ft. of heating surface, and 6 ft. engines, with 600 ft. of surface, it was found, after three or months' work, that the 7 ft. engines had more power than the 6 ft. ones, and did the work, the result of which, determined the future orders to be 7 ft. wheels, with 700 ft. of surface: we see, therefore, that the size of the wheels had but little to do with the power, as, in one instance, the large wheels were given up for want of power, and in the other case the smaller ones were abandoned for the same reason.

Proportions of Locomotive Engines used on the Great Western Railway at its opening:

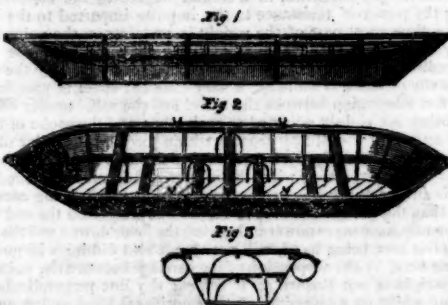
Name of engine.	Area of fire grate.	Total heating surface.	Diameter of Driving wheels.	Diameter of Cylinders.	Length of stroke.	Surface in fire-box.	Cubic contents of both cylinders.	Proportion of capacity of cylinder to the wheel.
Ajax	Feet. 10-22	Feet. 474-0	Feet. 10-0	In. 14	In. 20	Sq. ft. 57-3	7-09	1:1-41*
Vulcan	9-38	589-0	8-0	14	16	55-0	6-15	1:1-3*
North Star	13-0	724-8	7-0	16	16	70-10	7-42	1:0-94*
Morning Star	13-0	705-4	6-6	16	16	70-10	7-42	1:0-86*
Fire Fly	13-37	700-0	7-0	15	18	88-73	7-36	1:0-96†
Fury	12-50	608-0	6-0	14	18	79-0	6-40	1:0-94†

* The first engines used on the Great Western Railway.

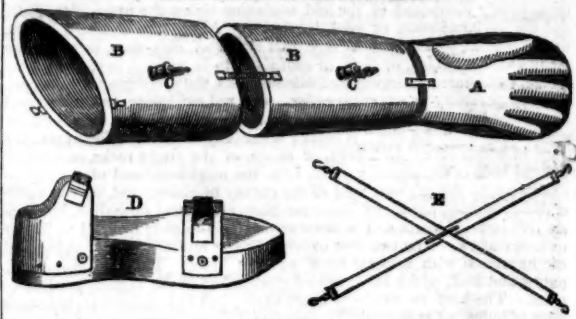
† Engines ordered by the company.

Mr. Crampton proceeded to explain, that as large wheels were advocated by him, and as the smaller ones were equally good, as regards power, provided the surfaces in the boilers were the same, and the cylinders were relatively proportioned, it was necessary to show in what their superiority consisted: he stated two reasons.—First, the parts of the machinery travelling at high velocities, caused considerable wear and tear, which large wheels reduced; and, secondly, the only tendency to oscillation, caused by the working of the engine itself, was reduced as the square of the velocities, i. e., to overcome the momentum of the unbalanced portions of the machinery—viz., the piston, piston rod, and connecting rod, which acted alternately, causing considerable side motion at high velocities—this action could only be ameliorated by the use of large wheels, unless some perfect and simple system of balancing the parts is discovered. It was remarked at the meeting, that Mr. Crampton's locomotive, and Dr. Ritterband's proposition for destroying deposit in boilers, which came on together, were, without doubt, the greatest improvements made for many years,—in which opinion we certainly concur, and we never recollect inventions having been brought forward and discussed, that met with more decided approval of scientific and practical men than these did. We believe Mr. Crampton's plan, for reducing the centre of gravity, and confining the weight between the axle, is the only attempt that has been made to do so on locomotives.

MONZANI'S PORTABLE LIFE-BOATS.—It has long been matter of complaint and regret that means have not been adopted for providing all large vessels, whether emigrant ships or those of the Royal Navy, with sufficient means of preserving the lives of the crew and passengers in case of fire or shipwreck; but it is not remembered that where perhaps there are from 500 to 1000 persons on board, it would be morally impossible to provide sufficient boats on deck, or any other part of the vessel, for them. To obviate this difficulty is the object of the present invention, and which, certainly, is well calculated to provide the much desired remedy. These boats are so constructed that they may be piled up on deck, and eight, when stowed, only occupy the space of one ordinary ship's boat. The construction is as follows:—the gunwale is formed by a light, but strong, frame, to which is attached the seats or thwarts, forming the entire upper surface of the boat; between that and the bottom is another similar frame of smaller dimensions, braced together by the stretchers; and the bottom, which is flat, is composed of three layers of planking, one lateral, another transverse, and the third diagonal—the whole copper-fastened and strongly rivetted together; the covering of the boat consists of a strong and thoroughly waterproof kind of tarred canvas, and thus, when not in use, the lower frame fits round the bottom, and the upper frame is just large enough to fit outside the lower, and the whole becomes a flat surface, the covering being sufficiently pliable to allow the raising and lowering of the frames with the greatest facility. When required for use, all that is necessary is for a man at each end to lift the gunwale to its extent, raise the two largest iron arched supports at the two end thwarts, and the other supports to each seat and stretcher, as quick as possible. Two air cases which are kept to each boat, and which, when closed, are about the size of a hat, are to be pulled out or elongated, in which operation they fill themselves with air, are then to have the plugs screwed in, and by straps already fixed to the frames, are securely lashed all round the boat just below the gunwale: the whole can be completed in less than four minutes. Here, then, is an invention by which the chances of saving human life in cases of shipwreck are increased tenfold, and a vessel carrying 1000 persons may, without inconvenience as to space, stow away a sufficient number of these boats to take every soul off a sinking ship, and sufficient provisions, &c., for several weeks; being flat bottomed, they draw but little water, are light and strong, will ride in a sea where an ordinary ship's boat would perish, can be propelled at a rapid rate, and, if filled with water, will not sink. The agents are Messrs. John Gamble and Son, 78, Cornhill. The following diagrams will better show the construction:—Fig. 1 is longitudinal view, showing the air cases attached: fig. 2, a perspective of the boat when raised: and fig. 3, a transverse section of the rails, iron supports, and air cases:—



NEW STEAM-SHIP PROPELLER.—A new invention, patented by Mr. S. R. Parkhurst, for propelling steamers, has just made its appearance, a model of which has been perfected and exhibited to the Lords of the Admiralty, to the principal steam-boat companies in London and Liverpool, and to numerous scientific gentlemen conversant with steam navigation, from all of whom the most favourable and flattering opinion has been expressed of its practicability. It possesses great advantages over every thing now in use—amongst which it is stated that, by the application of these propellers, it will not require the immense weight of engines and fixtures now used. The steam-power may be applied with two or three small engines of from 30 to 40-horse power each, lying between decks or over the boilers; consequently, there would be a corresponding reduction in the consumption and cost of coal; and the space which the large engines now occupy could be appropriated for freight or passenger berths. This invention supercedes entirely the paddle-box, with its immense shaft and wheels, and will effect a great increase of speed.—*Liverpool European Times.*

ROYAL LIFE-PRESERVING AND SWIMMING APPARATUS.
(Registered pursuant to Act, 6 and 7 Vic., cap. 66, and by Royal Letters Patent.)
THE INVENTION OF MR. JOHN KEYSE.

A.—Gloves, with the hands webbed and extended; thereby producing considerable power and buoyancy, exceeding vastly the propelling power of each natural hand in the ordinary method of swimming, giving entire freedom to the fingers, dispensing with the contraction of the hand, and relieving the individual from the effects of cramp, which is often produced through such causes.

B.—Air-tight conical armlets, connected to the gloves, and which are detached into three parts, very simply connected; thereby leaving the elbows and wrist joints to entire freedom of action when applied to use, by being drawn on to the arms and hands. The armlets are drawn up to the points of the shoulders and elbows, confining the power of buoyancy when inflated on the leverage of the joints; thereby raising the individual over the surface of the waves of the sea, and keeping the head high and the mouth free from the water. This inflation can be increased for providing additional buoyancy when required, for protecting persons from drowning.

C.—Self-acting valves, for inflating the armlets. The ends to be placed between the lips, the nipple against the teeth, and forced back, opening the valve and blowing the air in at the same time. The nipple to be pressed down, when required to discharge the inflation, in cases of drowning to preserve or secure the body. On rising to the surface, a new inflation will enable the diver to support the body, and the power of the apparatus to bring it ashore; thereby dispensing with the difficulties attending life-boats.

D.—Cork, elags, secured by elastic straps and buckles; concave at bottom, possessing the powerful advantages of propulsion, and giving to the wearer the apparent effect of pressing himself forward, as if forcing or projecting himself from some fixed substance. It, likewise, possesses the advantage of making considerable progress in treading water; thereby occasionally relieving the arms from the effects of long exertion. They are also of vast benefit in cases where persons are a length of time immersed in water by preserving the legs from depressing. The incalculable value part of this portion of the apparatus is clearly demonstrated—for instance, from the pressing down of a reversed strap—such as a glass—immersed in water.

E.—Cross straps, passing over the back and shoulders, and fastened to the two rings of the upper armlets, for preserving the position when the inflation is sufficiently discharged, and permitting the diver or wearer to dive with facility.

Note.—The admirable principle and effects of this apparatus, are exemplified by the swimming powers of the frog, swan, duck, &c.—the body being entirely free, and possessing all its momentum or power, by the action of the extremities.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—In relation to the above invention, I beg to say that it has been tested in the River Thames, private baths, and, more particularly (as that is a greater proof of its practicability and efficiency in cases of danger), in the open sea—in all of which cases I am happy to say the experiments were crowned with the most complete and admirable success. It will be found on inspection and trial to possess power and qualities which no other apparatus for the purpose at present does, by giving buoyancy and momentum to the extremities, and so preserving the central weight of gravity, thus enabling persons to swim against tides and cross-currents, neither can any one be drowned whilst wearing the apparatus; it also dispenses with the necessity of teaching the art of swimming, by giving to the wearer the confidence and power to swim, and to save himself and others in case of danger. Its value to bathers, by dispensing with the life-boat, is incalculable; and in cases of wreck on sea-shores, its operation would be found most successful for the preservation of human life; and, in this instance, I may allude to the late melancholy occurrence of the loss of the *Cataraqui*, emigrant ship, off King's Island, Bass's Straits, when upwards of 400 persons perished, merely for the want of some efficient means on board or on shore, of conveying a rope to the sufferers. This is one only of the numerous instances that have lately occurred where life might have been saved by my apparatus. In cases also of persons falling overboard from any of Her Majesty's vessels of war, or of merchants' ships, it would be found to answer perfectly, and where the life-buoy has often proved a failure. Looking at the valuable qualities possessed by the above simple contrivance, with no difficulty in applying or wearing it, capable of being put on or taken off in one minute, I hope, by the means of your scientific and talented Journal, to draw the attention of all persons of humanity and Christian feelings to the necessity of giving public countenance and support to my invention; but bearing in mind the inefficiency of all the present means adopted for saving life (in comparison with this apparatus), and also the daily and awful cases of loss of life from shipwreck and other causes, at which the heart recoils to mention, I myself have no fear of the public patronage in support of the cause of suffering humanity. London, Feb. 26. I am, Sir, your's, &c., JOHN KEYSE.

PATENT STEAM HAMMER.—A very interesting experimental trial of Mr. James Nasmyth's patent steam hammer of 50 cwt., took place at H.M. dockyard at Chatham, where it has been recently erected. The trial commenced with breaking up old and condemned anchors, under the superintendence of the patentee, and in the presence of Captain W. H. Sheriff, superintendent of the yard, and several ladies and gentlemen who had been especially invited to witness the immense power and perfect control under which the hammer is placed by the inventor's beautifully constructed machinery. Anchors of various sizes were broken up in lengths, just at the pleasure of Mr. Nasmyth and the orders of the Captain Superintendent, with perfect ease—in some instances by one fall of the hammer; after which, a part of the shank of an anchor, of about 30 cwt., was heated to a welding heat and beaten out by the hammer to a rod of about four inches in diameter. Here proof was given of the perfect control under which the inventor had the hammer in finishing off or rounding up. It was brought out from under the hammer quite equal in finish as it would have been by the small forge hammer. The advantages to the government will be readily perceived, as they will now be enabled to break up the old rope and other condemned anchors, which can be converted to useful purposes. It may not be generally known, that most of the old anchors being charcoal iron a large quantity of superior iron will now be rendered available for Her Majesty's service at a very great saving. In beating out iron for conversion, the blows are so powerful and effective that it drives out all spurious materials from the iron, and perfectly consolidates the whole mass; in proof of which, the four-inch rod was cut into various lengths and exhibited a beautiful specimen of solid metal, whilst the part of the shank that had not been under the hammer, showed nearly every bar and rod with which it had been made, except within about an inch of the outer surface. Mr. Nasmyth has orders to provide a patent steam hammer for each of Her Majesty's dockyards.

IRON MAIL STEAM-PACKETS IN FRANCE.—We have alluded, in former numbers, to the attempts now making by the French Government to increase their navy by the addition of a large number of iron steam-vessels, and some very extensive contracts have been offered to be entered into, on condition that should the Minister of Marine and Colonies accept the conditions offered, British cast-iron shall be admitted free of duty, for that express purpose only, which it is expected will be conceded by the Minister, as at present France has not the means of supplying material herself for so great a construction; and if the Government is determined to carry out this intention, it must import its iron from this country. The subject will soon be decided by the Chambers, the majority of the Members being strongly in favour of a general reduction on the entrance duty of English iron generally, whether wrought or cast metal, so as to enable the great projects and speculations contemplated to be carried out, without the slightest delay possible. Amongst them is that of establishing a direct line of mail iron steamers from the chief commercial ports of France, so as to afford a direct postal communication with Spain and Portugal, and to offer to England the advantage it will afford, by a direct line being established with the western coast of Africa, the adjacent isles in Europe and in Africa on this side of the Atlantic Ocean, besides which, with all the ports and islands of America, from the mouth of Mississippi, as far as the River Plata. The project has been submitted to the Minister of Finance, M. Theodore Lechevalier and other Members of the Chambers, who would willingly support the Government measures, and it has met with the general approbation of the Ministers of Marine, Commerce, and Finance. The subject will shortly be brought before the Chamber of Deputies, as a council of delegates, many of whom are intimately connected with the Colonies and North and South America, are making their report and estimates, which will be presented to the Minister and the members of the different Chambers of Commerce in the leading sea-ports for their approval.

Proceedings of Public Companies.

MEETINGS DURING THE ENSUING WEEK.

MONDAY.....Hansom Mining Company—office, at Two.
Great Wheel Williams—Stonehouse, at Ten.
London and Birmingham Railway—Eastern Station, at Twelve.
London Commercial Sale Rooms—Institution, at Twelve.
TUESDAY.....United General Gas Light Company—office, at One.
WEDNESDAY.....Wheal Benny Mining Company—Sun Inn, Callington, at Twelve.
Sourton Consols Mining Company—Globe Hotel, Plymouth, at Twelve.
THURSDAY.....New Brunswick and Nova Scotia Land Company—office, Twelve for One.
Provident Clerks' Mutual Benefit Association—London Tavern, at Six.
West London Railway—London Tavern, at One.
FRIDAY.....Wheal Fortescue Mining Company—Tavistock, at Four.
Provident Life Assurance—office, at Two.
SATURDAY.....North American Colonial Association of Ireland—office, at One.

[The meetings of Mining Companies are inserted among the Mining Intelligence.]

CHURCH OF ENGLAND ASSURANCE.

The annual general meeting of the proprietors of this institution was held at the offices of the company, Lothbury, on Monday, the 3d instant.

WILLIAM SLOANE, Esq., took the chair on the occasion.

The report expressed the gratification of the directors at the increased prosperity of the institution. The new business of the past year had increased upwards of 26 per cent. over the new business of 1844, and 51 per cent. over that of 1843; and the premiums received had increased 33 per cent. over 1844, and 78 per cent. over those of 1843. The claims were far below the rate of mortality allowed by the tables; and the fire department had the same satisfactory result, as reported on previous occasions, with regard to the amount received from premiums, when compared with the amount of claims. It also added to the very large increase in assurances effected by the clergy, both in the life and fire departments; in the life department especially, the increase was upwards of 50 per cent., when compared with any previous years.

The four directors who retired (namely, James Lamb, Esq., the Rev. Thomas Robertson, Major Adair, and John Walker, Esq.), were re-elected unanimously; also the two auditors, R. S. Cahill, and John Berington, Esqs.—The Rev. H. T. Tucker was elected a director, in the room of John Anderson, Esq., deceased.—The Very Rev. the Dean of Emsay, and the Rev. Richard Wood, B.D., were elected additional directors.—A vote of thanks to the chairman, directors, and officers of the company, for their efficient discharge of their respective duties, was passed unanimously, when the meeting adjourned.

THAMES TUNNEL COMPANY.

The annual meeting of this company was held on Tuesday, the 5d inst., at the London Tavern—the chair was taken by B. HAWES, Esq.—Mr. CHARLIER read the advertisement convening the meeting, also the following

REPORT.

"Your directors in laying before you their annual report, have not any very particular observations to make with respect to the general state of your concerns.

The structure of the tunnel generally continues in the same substantial and satisfactory condition which it ever has done since it was completed, and its durability reflects great credit on the talents and judgment of Sir I. Brunel. One of the causes of constant expenditure in the management of the work is the influx of the land springs, which it has been the opinion of Sir I. Brunel will eventually entirely cease; but during the last year there has been no observable diminution, although there has been no increase.

Your directors regret that during the past year, being the third since the tunnel was opened for foot passengers, there has been a still further decrease in the amount received for tolls, showing thereby that the number of persons who visited the tunnels as a work of art, and who did not merely use it as a passage across the river during the second year after it was opened, was larger than had been supposed. It is, however, still to be hoped that the amount received for tolls will not, during the next year, be again diminished, and of course the increase of the population and the improvements making in the neighbourhood are likely to increase the number of persons who will find the tunnel a convenient mode of thoroughfare. The effect of Juke's patent furnace, which had been applied to one of the boilers of the steam-engines, to which your directors adverted in their report last year, has been most satisfactory; the expenditure in coal being thereby so considerably reduced that it is calculated that the alteration has almost saved in coals the amount expended on it. Your directors have been compelled to lay out a portion of the amount last advanced to the company by the Commissioners for Public Works in a new section of the tunnel, for raising the water out of the tunnel. The old pipe and main, which were in a very bad condition, are now under repair. When these improvements shall have been completed there will be two totally independent means of pumping out the water, so that should an accident occur to any part of the pumping apparatus there will always be another means of pumping ready, thereby preventing the possibility of the tunnel being flooded by any accidental obstruction. Several plans have been in contemplation for carrying a railway through the tunnel, but as yet your directors are not aware whether any of the contemplated schemes are likely to be carried into effect. Your directors will carefully watch your interests, should any scheme of the kind be likely to obtain the sanction of Parliament. It is to be hoped that such a plan, if carried into effect, would be of great advantage to the Thames Tunnel proprietors; while, at the same time, the public would continue to have the use of the tunnel as a foot passage. It will be necessary to have your sanction to any scheme for a railway to pass through the tunnel, and therefore, if there is a probability of any one being carried into effect, you will have due notice to attend a special general meeting for that purpose.

Your directors deeply regret to state that Sir I. Brunel has for some months past been afflicted with a loss of health, which it is to be feared will render it impossible for him again to take any active share in your concerns. A great part of his time, during the last 10 years, has been devoted to the progress and completion of the works of the tunnel, and it must be a great satisfaction to him to see his exertions crowned with success in accomplishing a work which had been considered almost an impossibility.

Your directors have still the advantage of consulting the acting engineer, Mr. Page, whenever there may be occasion to do so, and from him they have always derived most efficient assistance. The usual statement of the receipts and expenditure for the year ending 31st December last, will be laid before you."

Mr. WINDAS asked what was the amount of debt and interest?

The CHAIRMAN said 250,000l., and there was about 50,000l. for interest, of which 14,000l. had been paid. He had an interview with the Commissioners of Public Works, who expressed a wish to show a favourable consideration for the proprietors in case of any purchase of the tunnel.—Mr. ADAMS spoke in relation to the accounts, and suggested an improved method of keeping them.—The CHAIRMAN was sorry to inform them of the extreme debility of their eminent engineer, Sir I. Brunel, who, notwithstanding, gave the greatest attention to the work of the tunnel—the reports of which were brought to him regularly.—After the election of Sir Alex. Craighigh and Mr. Hawes, the meeting separated.

BRITISH COLONIAL BANK AND LOAN COMPANY.

The fifth annual meeting of this company was held at the bank, Moorgate-street, on Wednesday, the 5th instant.—JAMES STEWART, Esq., presided.

The MANAGER (Mr. J. R. Holloway) read the advertisement, and the following

REPORT.

The directors have much pleasure in laying before the shareholders their fifth annual report. They believe that the depression under which the colony of New South Wales has for some time laboured, is, as they ventured to hope in their last report, gradually disappearing, and that, with the returning prosperity of the colony, the prospects of this company may be expected considerably to revive. Since the last annual meeting on the 5th of March last, the accounts of the company have been audited by the three auditors appointed, and the balance sheet appended to the last report has been found to be correct, and in pursuance of the resolution of a general meeting of the shareholders on the 2d of July last, a dividend of 2½ per cent. on the capital stock of the company was declared. Since the last general meeting, a reduction of the liabilities of the company has been made, to the extent of 4100 to the 31st December last, and since the closing of the year's accounts a further reduction of 5300l. has been effected, making a total of 9400l.; and all the other debts affecting and assets of the company are in a train of settlement. The expenses of the company would have been further reduced, had not the law charges in the colony, incurred in foreclosing the mortgages, considerably increased them. The directors, however, consider that the obtaining of the foreclosures will be of ultimate benefit to the company. The call made on the 2d October last, has been met in a very satisfactory manner. The directors have to express their great regret at the death of their late respected chairman, Sir HERBERT COMPTON. The following directors, according to the deed of settlement, retire from the direction, but, being eligible, hereby offer themselves for re-election, viz.:—Sir FRANCIS SHUCKBURGH, Bart., Colonel Sir WILLIAM GOSSETT, and JOHN STEWELL, Esq. The receipts of interest and rent are small, but, looking to the general state and prospects of the company, they will, in the opinion of the directors, justify the declaration of a small dividend.

From the statement of accounts to 31st Dec., 1845, submitted by the directors to the meeting, it appeared, that the entire paid up capital of the company was 1,400,000l. 8s. 4d.; total liabilities, British and colonial, 19,686l. 2s. 4d.; balance of profit and loss, carried to credit of next account, 23,944l. 4s. 11d.—total, Dr., 212,495l. 8s. 11d. On the Cr. side, there were, for proportion of preliminary expenses, 4800l.; advances on colonial stock, with interest, 14,586l.; loans, 184,978l. 12s. 6d.; cash in hand, 5351l. 10s. 10d.; and bills receivable in Sidney, 2778l. 6s. 7d.—total, as above, 212,495l. 8s. 11d. From the profit and loss account, it appeared, that the total profit for the year was 12,304l. 4s. 2d.; from which was paid, for current expenses in London and Sidney, 4812l. 1s. 4d.; dividends, 3182l.; losses on bills in Sidney and interest, 2415l. 17s. 11d.; and balance of profit carried to next account, 23,944l. 4s. 11d.

The CHAIRMAN said, that he would move the adoption of the report, and, in doing so, would commence the few observations he had to make, by an expression of the great regret which the directors felt, and in which, he dare say, all the shareholders would participate, at the severe loss they had sustained in their late chairman, Sir Herbert Compton. He was sure that all who knew that gentleman would agree with him, that his memory must always be respected, for he was a steady and faithful friend to that company, and had always exhibited himself as such by his purse and advice. He thought it his duty to say this much in favour of their late excellent chairman. With respect to the position of the company, he was happy to say that he did think much more favourable of it than he ever did before. Though they had not so much in receipts as they had in the last year, yet he thought as much had been done as could reasonably have been expected under the circumstances. The amount of loans at 7½ per cent. was 50,000l., which was not likely to be foreclosed; and those foreclosed producing a rental, were to the extent of 94,000l. Then there was a balance of 41,000l., which, by the last advice, was in the hands of the company, and unproductive. Now, as that part of the property was entirely unproductive, negotiations were going on for giving in exchange a proportionate amount of shares of the company for such entirely unproductive land. This he believed would be adopted to the extent of 5689l., and shares of the company would be offered for this unproductive land. These sort of negotia-

tions, he thought, would be carried to a very considerable advantage to the company. The 50,000l. lent at interest, at 7½ per cent., produced 3750l.; and the 94,000l. at the same rate, if maintained, would produce 7000l. more. Supposing the unproductive property was set down at 750l., he might say that their receipts, according to the last calculation, in next year would thus altogether be 8000l. He thought he made that statement at the last meeting, and, if so, they would see by the balance-sheet that it had been nearly realised. By the next advice, about 1500l. would have to be raised previous to the 30th of June last; therefore, that amount of 8000l. would be pretty nearly made up. He had not overstated their receipts for next year, when he stated them at 8000l.; indeed, he had a strong opinion that there would be a larger amount received. At the last meeting, he found that it was stated that the expenses both here and abroad would be about 3000l.; he now could say, that the company would have been carried on for less, had it not been for the large law expenses incurred in foreclosing the mortgages, which amounted to 1000l. There would, of course, be no expenses of this sort every year; but yet they should not be regretted, because by possessing the lands in this way, they could recover back all or part of their money. It would be seen, that they had already paid off the debt of 9400l., and they proposed to pay off a further debt of 5000l. A reduction in interest of 1000l., would, consequently, take place (hear, hear). In corroboration of his statements, the CHAIRMAN read a letter from the manager in Sidney, which was favourably received, and concluded by expressing himself ready to afford any information that might be required.

After the adoption of the report had been moved and seconded, Mr. MASON made a long speech, in respect to the justice of giving to his repudiated scrip the value of the present shares of the company.—A PROPRIETOR said, that gentleman had the usual period for exchanging the scrip as well as others, and he did not see why he should be favoured to that extent.—The CHAIRMAN said, the question had been at rest three years ago, the particulars of which, if necessary, he would read to the meeting. (No, no.)—Mr. COOK also endeavoured to read a letter on the same subject; but, as he was not a registered shareholder, he was not allowed to speak on the subject.

The matter then dropped, when, on the motion of the CHAIRMAN, seconded by Mr. SMITH, the report was adopted unanimously.

Mr. JACKSON moved, and Mr. RHODES seconded, the re-election of Sir Francis Shuckburgh, Bart., Col. Sir William Gossett, and John Showell, Esq., as directors of the company, which motion was passed unanimously.

Mr. CUMMING moved a vote of thanks to the chairman and directors, which was agreed to unanimously.—The CHAIRMAN returned thanks and said, they would give their best attention to carry on the affairs of the company in a successful manner, and, in doing so, they should always, as they had done hitherto, be happy to listen to any expression of opinion from the general body of shareholders. (Applause.) The meeting then separated.

LONDON AND OXFORD RAILWAY.

This proposed line of railway from London to Oxford direct, originally came out under the name of the London, Oxford, Cheltenham, Gloucester, and Hereford Railway; and was intended to afford a cheaper, more advantageous, as well as more direct, communication between the metropolis and the west of England and South Wales. The expenses of the undertaking were estimated at 2,500,000l., the deposit being 1l. 7s. 6d. per share, of 25l. each. The evident excellence of the line soon recommended itself to the noblemen, landholders, and other influential gentlemen, interested in the three counties through which it was to pass, of whom we may mention the Right Hon. Earl of Orkney, Viscount Loftus, M.P., Lord Northwick, Lord Dunailley, Lord Sudley, Sir Edwin Pearson, &c.; and the inhabitants and authorities of the different towns through which it was intended to carry it, were unanimously in its favour. In deference, however, to the proprietors of the Great Western Railway, and in order to remove as many as possible of the objections which that company might entertain towards the above undertaking, the managers resolved not to carry the line to Cheltenham and Hereford, but to make their terminus at Oxford. The railway, as originally proposed, would have been in length 126 miles, from London to Hereford; and there would have been a saving of no less than 30 miles over the existing railway communication in the distance (92 miles), between London and Cheltenham. At the latter place, the projectors intended to adopt the Birmingham and Gloucester Railway, and, from Gloucester, to proceed by Ledbury to Hereford, where it would join the projected Welsh Midland and Newport, Abergavenny and Hereford Railways—thus affording a direct communication from London, not only to the counties of Buckingham, Oxford, and Gloucester, but to the important districts in Monmouthshire and South Wales; while, in addition to these incalculable advantages, it would afford the most direct route to the south of Ireland. The London and Oxford Railway is proposed to commence at a point of junction with the London and Birmingham Railway, about seven miles from the Euston-square station; and, following the course of the Brent Valley to Greenford, will proceed by or near Hayes, Uxbridge, Beaconsfield, High Wycombe, and Thame, to Oxford. The entire length of the line will be about 82 miles—thus saving in distance upwards of 10 miles upon the present mode of communication. As the railway will pass through a tract of country, to which at present there is no convenient means for the transit of goods and passengers, and from the immense traffic in agricultural and manufacturing productions which is carried on between London and the different towns with which it will communicate, independently of forming subsequently the great trunk line from the metropolis to the mining and manufacturing districts in the north-west—thereby eventually insuring an incalculable amount of traffic—there can be no doubt as to the undertaking affording the shareholders a most profitable investment for their capital, returning, at least, an equal per centage to that of the two great lines on either side.

To the farmers of the counties of Buckingham, Gloucester, and Oxford, this communication with the metropolis will afford vast advantages—inasmuch as, from the interior of these counties, they are very deficient at present of the means of transmitting their produce quickly and cheaply to the different markets. Now that the corn laws are to be doctored, and, consequently, the English farmer left without protection in but a short period, nothing, we can conceive, will better enable him to fight the battle of competition with his foreign rivals in the market, and preserve him from sinking in the troubled waters, than direct, rapid, and cheap communication; and this will most assuredly be effected by the London and Oxford Railway for the farmers in the districts we have mentioned, and enable them to transmit their produce at a comparatively nominal expense to Market-lane, and the important corn market at Uxbridge, which, of itself, at the present time consumes upwards of 3000 quarters. We have not the least doubt, therefore, that, when made acquainted with the advantages of the undertaking, the great influence of the vast body of agriculturists will be directed in its favour—a supposition in which we are evidently borne out by the number of names attached to the different petitions now in course of signature. The whole of the preliminary business, and the necessary deposits, required by the Board of Trade, have been complied with; and we understand, that the company will not only have the support of many members in the Upper and Lower House, but will be favourably entertained by Government. Some time ago, we may mention, as a proof of the estimation in which the line is held, a meeting took place at Uxbridge.—Dr. BEASLEY in the chair,—at which it was unanimously resolved, notwithstanding there being no less than 11 different projects brought before the meeting, and great opposition on the part of the Great Western Company (who propose a short line from Uxbridge, to form a junction with their trunk line at West Drayton). That no railroad will meet the wishes or consult the interests of the town of Uxbridge, which does not open a direct communication with Buckingham and Oxfordshire; and that cross or junction lines, in addition to a trunk line, and having stations at Uxbridge, will materially assist the trade and traffic of the town.—There have been various meetings in favour of the line during the last week, and the first was the

MEETING AT WYCOMBE, which was held in the Town Hall of that place, on Friday, the 27th ult., to consider which of the proposed lines of railway would be most beneficial to the town.—The MAYOR in the chair.—The meeting was most numerously attended by the inhabitants and influential parties in the town and neighbourhood.—Several gentlemen addressed the assembly on the advantages of the London and Oxford Line, when a rather stormy discussion ensued as to whether that line, or the "short line," would be most advisable to adopt.

Mr. PALLETT (who, says the *Windsor and Eton Express*, "caused great amusement by the lofty manner in which he defended the Great Western Company"), addressed the meeting at great length on the advantages which he conceived might be derived from a branch from Wycombe to the trunk line of the company to which he belonged; but, on the CHAIRMAN putting the different propositions to the meeting, there appeared only six hands for the "short line," or Great Western Junction; and the body of the crowded meeting declared in favour of the "long line," or London and Oxford.

MEETING AT UXBRIDGE.—In consequence of a requisition, signed by a large number of the most influential bankers, traders, and inhabitants, requesting the lords in trust of the manor and borough of Uxbridge "to convene an early meeting of the inhabitants of the town and vicinity, to take into consideration the propriety of petitioning Parliament in favour of the intended railway from London to Oxford, and to adopt such measures in support of the same as may be deemed expedient," a meeting was held in the Public Rooms of that place, on Wednesday last, the 4th inst.—On the motion of HENRY HULL, Esq., seconded by T. BEASLEY, Esq., LL.D., Uxbridge, DANIEL RUTTER, Esq., took the chair.—The CHAIRMAN read the advertisement calling the meeting, and said that, before he called upon the gentlemen who would propose and second the different resolutions which would be submitted for the approval of those present, he could not allow this opportunity to pass without expressing his gratitude for the honour which they had conferred upon him. He was sure there were many present who would have filled more ably than he could do the position to which he had been elected. He had always taken a great interest in the proposed line, and could foresee many advantages which would accrue from its adoption, both to this town and the large agricultural district through which it would pass; and, consequently, he had given it his entire support, and was determined to persevere, in order, if possible, to carry the subject out to the fullest extent. He would not occupy the time of the meeting by his

remarks, but would call upon the gentleman who was to propose the first resolution.—Dr. BEASLEY then rose and said:—Gentlemen, I have already been chairman at two of your meetings, and said so much on the subject of railways, that I am sure any lengthened remarks of mine would be distasteful to you, and but a waste of time. (Oh! Oh!) Yet, I cannot help reverting to the unanimity which has, from the commencement, prevailed among us, upon this important matter. In proof of this, I need only refer you to the excellent meetings which have already taken place in favour of this line, where so much unanimity of feeling prevailed. I must confess that I am not at all an advocate for railways; but, since we are to have them, let us have those that afford the best and cheapest, and most direct communication. The traders in this district were not to submit to the usurpation of the whole traffic by the Great Western Company, when they could get a means of conveyance for their goods, which would not only be less expensive, but afford greater security and facility. I have great pleasure in proposing the following resolution, which, without any more remarks, I will read to the meeting:—"That the proposed railway, from London to Oxford, if completed, will afford to the inhabitants of Uxbridge, an immediate communication with London and Oxford, and the north-west of England."—T. H. RICHES, Esq., seconded the motion. He sympathised with the sentiments expressed by the speakers on this occasion. The proposed railway had been first in the field of all the different projects, which had been suggested, and brought before their notice. The Great Western, however, claimed the precedence; he very much doubted the justice of that claim, and called upon them to prove the truth of that statement. That company had already about 400 miles of railway in existence, and he could not conceive why they should be so monopolising and unfair as to raise any opposition to the inhabitants of Uxbridge, and the agriculturists of Buckingham and Oxfordshires, and the different interests therewith connected, having a direct and cheap line to carry their goods to market. He cordially seconded the motion proposed by his respected friend.—On the motion being put from the chair, it was carried unanimously.—H. HULL, Esq. (one of the greatest corn dealers and flour merchants in Uxbridge), after reading the second resolution, said:—In consequence of my being so largely connected with the corn trade—the staple industry of this town—it will no doubt be expected, that I should say something relative to the proposed line of railway, from London to Oxford direct. The resolution which has been put into my hand, utters a fact; the truth of which I have individually felt (hear, hear). The trade of Uxbridge has, indeed, dwindled away; and that simply from the want of means of transit. The opposition line has carried a great part of our traffic in another direction; but to think of taking wheat to Maidenhead, was like importing coals to Newcastle (laughter). What the town of Uxbridge required, was a direct communication, not only with London, but with the interior of the two counties of Buckingham and Oxford. Now, the entire quantity of wheat required to supply our market, was upwards of 8000 quarters; but of this quantity we are only able to procure 1000 quarters, and that even at unnecessary expense. Thus we are left to provide, as we best may, at a considerable cost, the remaining 7000 quarters necessary for our consumption. It was a well-known fact, that Uxbridge was one of the best markets in England, and the wheat there was not only of a superior quality, but brought among the highest prices of any in the kingdom. Are we, then, to submit to see our trade dwindle, and our expenses unnecessarily great, when we have the means in our power of resuscitating the one, and averting the other? Independently of the direct and quick transit offered by the London and Oxford Railway, if completed, I firmly believe that, in the expenses, we shall at least save one-half of the present charge of carriage. Now, a statement which I made in regard to coals, at another meeting, was called in question by some coal brokers; and, not having any authority with me, I was unable to convince them of its correctness. At present, several gentlemen were paying the enormous price of 45s. per ton for their coal, and all on account of the immense charge for carriage; but, with the London and Oxford Line, they would be enabled to procure the best Wall's End at 21s. 3d.—thus effecting a great saving on that important article of consumption. The freight to Uxbridge would be 3s.; the commission would be 6d.; loading into the trucks, ex-barge, 9d.; 12 miles at 1d. per ton per mile, gives the expense at 5s. 3d.—While now 1s. per ton per mile was paid for cartage alone. Again, the conveyance of coals from Maidenhead to London (30 miles), which was now 7s. 6d. freight, 2s. for cartage, and 1s. for truck—total, 10s. 6d.—could be accomplished by the London and Oxford for 1s. 9d. It is very important, that this town should be supplied with coal at as cheap a cost as possible; essential alike for the comfort and welfare of the inhabitants, as the prosperity of the trade and town of Uxbridge. I will now conclude my remarks by stating that, at the meeting at Wycombe, notwithstanding that the Great Western had sent a barrister down to oppose this company, the large and crowded meeting resolved all but unanimously in favour of the London and Oxford—only six hands being held up against it; and I have no doubt this meeting will be alike, if not more, decided in favour of that line. Mr. HULL concluded by reading the resolution, which was as follows:—"That, in consequence of the discontinuance of upwards of 40 coaches through Uxbridge, the trade and business of the said town are being diverted into other channels; whilst the market supplies are not equal to one-third of the requirements of the several corn mills in the neighbourhood."—R. LUGGAS, Esq., seconded the motion. Though not a resident of Uxbridge, he thought it was but right he should come over from Wycombe, to be present at their meeting, since he was so convinced of the importance of the undertaking. He would read an extract from a letter, which appeared in the *Railway Times* of the 28th ult., relative to the London and Oxford Railway. After referring to some editorial remarks, the letter proceeds:—"You are equally right, Sir, in contending for the necessity which now exists for a direct London and Oxford Line; could any doubt about it have existed previously, the report of the gauge commissioner sets that doubt at rest. There is, moreover, a line before Parliament—a line which was not brought out under the patronage of brokers, the shares in which were not bought up at a fictitious price, and which has, therefore, excited little notice—but which, if successful (and since the report upon the gauges, its success can hardly be considered doubtful), will occupy as commanding a line within the four seas, and will provide for this connection in the most advantageous manner possible. This line, 'the London and Oxford' (originally the London, Oxford, Cheltenham, Tewkesbury, Gloucester, and Hereford), having a double terminus, starts from the most convenient points of the London and Birmingham and Great Western Lines, and forms a route to Oxford; to which place, from the union of the branches at or near Uxbridge, it is intended to carry both gauges 9 or 10 miles shorter than the present route. Such at least were the arrangements when they last came under my notice; whether the broad gauge—if the report of the commissioners is acted upon—may not be dispensed with, and access to the Paddington terminus provided for by a narrow gauge, laid down for the short distance which trains would have to run on the Great Western Line—will be for the consideration of the Legislature, the directors of the line in question, and those of the Great Western. The decision of the commissioners being essentially the same as that of the Board of Trade—while the Parliamentary committee expressly disclaimed any intention of deciding upon the question of gauge, and explicitly rested their decision on the merits of the competing lines independently of it, so that there is no conflict of authority. I apprehend, that the recommendation of the report must be acted upon, especially now, when economy of construction is more likely to be thought of than it was a year ago; and, therefore, that the Oxford and Rugby Line, the Oxford and Birmingham Junction, the Oxford, Worcester, and Wolverhampton, the Oxford and Cheltenham, and the South Wales, being of the narrow gauge—a point on which the shareholders in all of them, especially the latter, are much to be congratulated—it is evident that a very large amount of traffic, from all these lines, must at Oxford concentrate upon, and thence be carried to London by this line, which will form the connecting link between the metropolis, and all of them, with the additional advantage of communicating with both the Paddington and Eastern termini, and with any eastern extension of the Birmingham Line from Camden Town. Of the advantages of a line thus situated, I think I have not spoken in too high terms, nor will the injury done, if any, by such a line to the Great Western, be so great as might at first appear. It is true, it will abstract a good deal of traffic from the Great Western proper, and its Oxford branches, but this is what the Great Western Company itself is preparing to do; and when it is considered that all the five lines just mentioned, will, in all probability, be in the hands of that company, and that the traffic on all of them—collectively some hundred miles in length—will be promoted by it, it will appear that the line in question must do much towards compensating for the injury, if it does not procure the advantage in reality. There was no doubt they might expect great opposition from the Great Western, a proof of which was evident from the proceedings at the Wycombe meeting; but they were determined to proceed to Parliament, and upon its decision, they would rest satisfied. He concluded by seconding the resolution, which, on being put from the chair, was carried *unanimi contrariis*.—Mr. T. MURRAY moved the third resolution, which was—"That a direct line of communication between London and Oxford, is the only means of affording the required accommodation to the inhabitants, and remedying the evils complained of."—T. SUACRE, Esq., seconded the motion, which was carried unanimously.—At the request of a gentleman in the meeting, Capt. the Hon. WILLIAM EDWARD FITZMAURICE, one of the county Members for Buckingham, addressed the meeting. He said it was gratifying to him to meet with so many persons taking an interest in the London and Oxford Line. He had associated himself with the promoters of this scheme from the commencement, and became the chairman of the direction, at considerable sacrifice and trouble to himself; but though he was overwhelmed with business, he was determined to persevere, and fight their battle as well as he could. The London and Oxford Line had much to recommend it, both to the House of Commons, the Government, and the public—it was decidedly the best line, and that which Nature itself had pointed out. If any gentleman looked at the map, he would find that the existing lines presented but a succession of triangles. Other companies had called this line a bubble, who had lately had a squawk for it themselves. He hoped between this bubble and the squawk, they would in the end have a good line. (Great laughter.) He was also an honorary director of the West Midland, by which railway they would be enabled to get large quantities of minerals from the mining districts in South Wales, and the north-west of England. He had, no doubt, that all the tin, &c., from the Swansea market would come by this line—since its junction with the London and Oxford would afford the most direct and cheapest means of transit to the south markets,—while the coal trade would be immensely benefited. At present, a very circuitous route had to be taken by the merchants in transmitting their products to their destination. The Oxford and Cheltenham Company were also favourable to the proposed line. They had already experienced opposition to their scheme by the Great Western Company; but he considered there was not much reason to fear the result. They had spent too much money of late upon additional lines, to enter upon a hopeless, fruitless, and expensive contest with the London and Oxford. He thought they put more value on their capital, than to throw away good money after bad. Last year, they had expended the vast sum of 12 millions sterling—which, no doubt, would detract from their power (however much they were inclined) to resist the direct line. Now, he had good authority for believing that their line would be preferred by the House, whether the Great Western thought proper to oppose them or not. He referred to the declaration made by Sir Robert Peel, who had stated plainly in the Commons, that the shortest and most direct line would be always preferred in the selection of its routes. The right hon. member had also said, that no line would occupy their attention, or receive support, but what was clearly, and beyond all doubt, for the benefit of the community. Now, it would require no great talent to demonstrate the propriety of proceeding to Oxford by Reading, or adopting a branch line from the direct

the city of London, where all Communications and Advertisements are requested
be forwarded—addressed to "the Editor"—post-paid. [March 7, 1841.]